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SATURDAY, APRIL 2, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XXVII.

IN the last lecture I commenced the examination of WATER as a therapeutical agent, and I have now to continue the subject.

BATHS.

Let us, in the first place, notice the effects produced by, and the benefit to be obtained from, immersing one* or more parts of the body in liquid water, or aqueous vapour.

History.—The practice of bathing is of great antiquity, and, in fact, precedes the date of our earliest records. It was, and is employed, sometimes for the purpose of cleanliness, sometimes for the preservation of health, and frequently as a means of sensual gratification. Ablutions were practised by the ancient Hebrews, as you will find mentioned in the Old Testament. Baths were used by the Egyptians, as well as by the Hindoos, the Syrians, the Medes, the Persians, and other inhabitants of the East. The most ancient of the Greek writers also frequently mention them: thus Homer speaks of them in the Iliad and Odyssey. In the writings attributed to Hippocrates, you will find baths alluded to, and their effects noticed. Celsus describes the different parts of the baths, and the mode of employing them; but the best description will be found in the works of Galen. In 1752, Dr. Glasse, of Exeter, published "*An Account of the Ancient Baths,*" to which I must refer you for further historical information; or to the article "*Balneum,*" in Dr. Parr's Medical Dictionary, the historical account of which is taken almost verbatim from Dr. Glasse's memoir.

Effects and uses of baths.—The effects of baths depend, for the most part, on the temperature of the fluid employed, on its conducting power, and, in part also, on its pressure. We may, therefore, conveniently arrange them thus:—

(*a.*) LIQUID BATHS.

(1.) *The cold bath.*
(2.) *The cool bath.*
(3.) *The tepid bath.*
(4.) *The warm bath.*
(5.) *The hot bath.*

(*b.*) VAPOROUS BATHS.

(*b.*) *The vapour bath.*

Writers are not agreed on the precise temperature of the above baths, but the order in which I have arranged them, according to their respective degrees of heat, is that which is generally admitted.

(1.) *The Cold Bath.*—The temperature of this ranges from 33° F. to about 65° F.: when it is below 50°, it is sometimes termed a *very cold bath.* The *effects* of immersion in the cold bath are analogous to those already described as being produced by the application of ice or snow to the body, and, therefore, may be conveniently subdivided into primary and secondary.

(*a.*) *Primary effects.*—The sudden abstraction of heat from the surface, and the pressure of the water, produce a powerful shock on the system: a sensation of cold, (speedily followed by a sensation of warmth) contraction of the cutaneous vessels, paleness of the skin, diminution of perspiration, and reduction of the volume of the body, are the immediate effects. Shivering, and, as the water rises to the chest, a kind of convulsive sobbing, are also experienced. Continued immersion renders the pulse small,

and ultimately imperceptible—the respiration difficult and irregular: a feeling of inactivity succeeds—the joints become rigid and inflexible—pain in the head, drowsiness, and cramps, are experienced—the temperature of the body falls rapidly, and faintness, followed by death, comes on. Many of these symptoms are readily comprehended: the contracted state of the superficial vessels produced by the cold, together with the pressure of the water, causes the blood to accumulate in the internal vessels. The heart makes great efforts to get rid of this increased quantity of blood, and hence palpitations occur; but as the arteries remain contracted, the pulse continues small. The internal veins, therefore, being gorged with blood, the brain must necessarily suffer:—hence the headache, the drowsiness, and the cramps; and we should not be surprised if even apoplexy were induced. The difficult respiration depends on the accumulation of blood in the lungs. The contracted state of the superficial vessels accounts for the diminished perspiration; while the increased secretion of urine is referable to the blood being driven towards the internal organs.

(*b.*) *Secondary effects.* — In general, the immersion being only temporary, reaction quickly takes place; a sensation of warmth soon returns; the cutaneous circulation is speedily re-established; a glow is felt; perspiration comes on; the pulse becomes full and frequent; and the body feels invigorated. In weakly and debilitated subjects, however, this stage of reaction may not occur, or at least may be imperfectly effected; and usually, in such cases, the cold bath will be found to act injuriously.

The *uses* of the cold bath may be in part comprehended from the effects just detailed. It is evident that it ought not to be employed unless there be a sufficient degree of tone and vigour in the system to cause a perfect state of reaction; and, therefore, in weak subjects, its use is to be prohibited. So also in visceral inflammation, more especially peripneumonia, it is a dangerous remedy; since the determination of blood to the internal organs is increased by the cold, and it seems even within the range of probability that death might be the result. Apoplectic subjects who are unaccustomed to cold bathing, had also, for a similar reason, better avoid trying it. In some affections of the nervous system it has been found highly useful; for example, in tetanus and insanity. So also in any cases where we wish to increase the tone and vigour of the body, and where the before-mentioned objections do not exist, the cold bath may be used advantageously. It is a common opinion that immersion in cold water is dangerous when the body is heated by exercise, or other exertion; and hence it is customary with bathers to wait until they become cool. Dr. Currie has strongly combated both the opinion and the practice: the first, he says, is erroneous, the second injurious.

(2.) *The Cool Bath* (whose temperature is from 65° to about 85°) is analogous in its operation to the cold bath, but less powerful. It is commonly employed for the purposes of pleasure and cleanliness; but it may be resorted to, therapeutically, in the same diseases as the cold bath, where we are in doubt as to the power of the patient's constitution to establish full reaction. It is frequently used as a preparatory measure to the cold bath.

(3.) *The Tepid Bath* gives rise to a sensation of either heat or cold, according to the temperature of the body at the time of immersion. The temperature of this bath ranges between 85° and 95°. It cleanses the skin, promotes perspiration, and is used as preparatory to either of the before-mentioned baths. It is said to allay thirst, and it has been supposed that the water becomes absorbed. Where there is a tendency to apoplexy, it has been recommended to immerse the body in the tepid bath, and at the same time to pour cold water over the head.

(4.) *The Warm Bath* varies in its *effects* on different individuals. Its temperature is about that of the body, or a little below it: we may say from 95° to 98°. In general it causes a sensation of warmth, which is more obvious when the body has been previously cooled. The pulse is rendered fuller and more frequent, the respiration is accelerated, and the perspiration augmented. It gives rise to languor, loss of muscular power, faintness, and disposition to sleep. The *uses* of it are various. Sometimes to cause relaxation of the muscular system; as in dislocation of the larger joints: and also in hernia, to assist the operation of the taxis. In the passage of calculi, either urinary or biliary, it is employed with the greatest advantage: it relaxes the ducts, and thereby facilitates the passage of the foreign body. As a powerful antiphlogistic, it is employed in inflammation of the stomach, bowels, kidneys, bladder, &c. With the view of increasing the cutaneous circulation, it is used in the exanthemata, when the eruption has receded,—and to promote perspiration, in chronic rheumatism, and various chronic skin diseases.

(5.) *The Hot Bath* (the temperature of which is somewhat above that of the body) gives rise to a sensation of heat, renders the pulse fuller and stronger, accelerates the respiration, occasions intense redness of the skin, and copious perspiration,—causes

the vessels of the head to throb violently—brings on a sensation of fulness about the head, with a feeling of suffocation and anxiety,—and, if the immersion be continued, apoplexy may even be induced. Being a powerful excitant, this remedy must be used very cautiously. Paralysis, rheumatism, and some chronic diseases, are the principal cases in which it is employed.

(*b*.) *Vapour bath*.—The vapour bath differs somewhat from the warm or hot bath in its effects; the hot air and vesicular water to which the body is exposed in the vapour bath, being much worse conductors of heat than water in its usual liquid form: the temperature of the bath is neither so quickly, nor so powerfully felt, so that the body can support a higher heat, and for a longer period; and in addition, the pressure is less. Like the common hot bath, it acts as a stimulant to the skin, exciting the cutaneous circulation, softening and relaxing the cutaneous tissue, producing copious perspiration, accelerating the pulse, quickening the respiration, and inducing a feeling of languor, and a tendency to sleep. There are two modes of employing it—either by immersing the whole body in the vapour, which is, consequently, inhaled, or inclosing the body in a chest or box, so that the head is not exposed to the vapour, which, therefore, is not inspired. The aqueous vapour is conveyed into the chamber or box by a pipe communicating with a steam boiler. Sometimes it is made to pass through various vegetable substances, with the odour of which it becomes impregnated, and from which it is supposed, by some, to gain an increase or modification of therapeutical power. These are the *medicated vapour baths*. Sometimes the common vapour bath is accompanied by a process of friction, kneading and extension of the muscles, tendons, and ligaments, constituting the *massing* of the Egyptians, or the *shampooing* of the Indians. Here is the account of the process, as given by Dr. Gibney. "After exposure to the bath, while the body is yet warm from the effects of the vapour, the shampooman proceeds according to the circumstances of the case, from gentle friction gradually increased to pressure, along the fleshy and tendinous parts of the limb; he kneads and grasps the muscle repeatedly, presses with the points of his fingers along its course, and then follows friction, in a greater or less degree, alternating one with the other, while the hand is smeared with a medicated oil, in the specific influence of which the operator has considerable confidence. This process is continued for a shorter or longer space of time, and, according to circumstances, is either succeeded or preceded by an extension of the capsular ligament of each joint, from the larger to the smaller, causing each to crack, so as to be distinctly heard, which also succeeds from the process being extended to each connecting ligament of the vertebræ of the back and loins. The sensation at the moment is far from agreeable, but is succeeded by effects not dissimilar to what arise from brisk electrical sparks, taken from the joints in quick succession."

The vapour bath is applicable to a great variety of cases, a few only of which can I afford myself time to notice. You will, however, very readily comprehend those likely to be relieved by such a powerful stimulant. Whenever you wish to excite the vascular system, more especially the cutaneous portion of it, this remedy may be resorted to with advantage. The cold stage of an intermittent and malignant cholera are cases which readily suggest the employment of this agent. In rheumatism and gout, in old paralytic cases unaccompanied with signs of vascular excitement about the head, in various atonic affections of the uterine system, such as chlorosis, and some forms of amenorrhœa, in dropsy of old debilitated subjects, in various skin diseases, (in which class of complaints, I would particularly recommend Dr. Green's work, for an account of the good effects of the vapour bath), in scrofula, in chronic liver complaints of long standing, &c., you may employ this remedy frequently with advantage.

I ought not to leave this subject without alluding to the extensive use made of vapour baths in some parts of the world, particularly Russia, where we are told it is customary for the bathers to issue from the bathing houses while quite hot, and to roll themselves naked in the snow, and then return to the bath, not only without any hurtful, but apparently with beneficial, effects.

Local baths.—Baths are divided into general and local, according as they are applied to the whole body, or only to parts of it. Local or partial baths receive different appellations, according to the part of the body immersed in them. Thus we have the *semicupium*, or half bath, in which the lower extremities and hips are immersed; the *coxæluvium*, or hip bath, which receives the hips only; the *capitiluvium*, or head bath; the *pediluvium*, or foot bath; and the *manuluvium*, or hand bath. Their effects vary with their temperature, and are of the same kind as those already described as produced by general baths, but more localized. Sometimes we use them as revulsives; as the warm pediluvium in cerebral affections: sometimes as local agents: thus we frequently use the hip bath in uterine affections.

AFFUSION.

I proceed now to notice another mode of employing water externally, namely, by *affusion*, that is, the pouring of water over some portion of the body. It is the καταχυσις of Hippocrates.

History.—This practice is of very ancient date: as a hygienic agent and luxury it was practised by the Greeks and Orientalists at a very early period, and allusions to it will be found in the Odyssey of Homer. Hot, tepid, and cold affusions, are mentioned by Celsus, in the fourth chapter of the first book, and are recommended in some affections of the head. This last writer also states, that Cleophantus (a physician who lived about 300 years before Christ) employed the affusion of hot water in intermittents. For the best account of the effects and uses of cold affusion, I must refer you to the "Medical Reports" of Dr. Currie. In the tenth volume of the MEDICAL GAZETTE you will also find a paper on the affusion of cold water on the head, by Dr. Copland, which well deserves your perusal.

Mode of applying affusion.—In many cases, the object is to use the affusion to the *head* merely. If the patient be able to sit up, let him incline his head over a large vessel, say a pan or tub, and then pour the water from a height of two or three feet from an ewer or large pitcher. If, however, he be too ill to be removed, he must incline his head over the side of the bed. In children, it will be sufficient to squeeze a large sponge at some height above the head, as recommended by Dr. Copland. In some cases it is necessary to guard against the cold water coming in contact with the chest.

When the object is to apply the affusion to the *whole body*, the patient must be placed in a large tub or pan—for example, a bathing-tub or washing-pan—and then an attendant standing on a chair may readily effect it. The time that the affusion should be continued will vary according to circumstances; I should say from $\frac{1}{4}$ to 2 or 3 minutes; but in some cases it has been employed for 20 minutes. After the affusion, the body should be carefully wiped dry, the patient wrapped up warm, and placed in bed.

Effects.—The effects of affusion depend partly on the temperature of the water, and partly also on the sudden and violent shock given to the system by the mechanical impulse of the water; hence the reason why the effects vary according to the height from which the liquid is poured.

1. *Of the affusion of cold water*—that is, of water whose temperature is between 32° F. and 65°.—To a certain extent the effect of this agent is analogous to that of the cold bath, but modified by two circumstances, namely, the short period during which the cold is applied, and the mechanical influence of the stream: hence, its primary effects are very transient, and reaction follows very speedily. By a long continuance of affusion, however, the heat of the body is very considerably reduced, and the same diminution of vital action occurs as when the cold bath is employed. The sensation of cold, the constriction of the skin, and the contraction of the superficial vessels, first experienced in the part to which the water is applied, is very speedily communicated to the rest of the system by sympathy, in consequence of the shock received; the effects of which are perceived in the nervous, vascular, secreting, and cutaneous systems. The temperature of the whole body falls, the pulse becomes reduced in volume and frequency, the respiration is irregular, and convulsive shiverings take place, faintness, and, in fact, all the effects already described of the cold bath are produced. During this condition the excretions are suspended. "When," says Dr. Copland, "the stream of water is considerable, and falls from some height upon the head, the effect on the nervous system is often very remarkable, and approaches more nearly than any other phenomenon with which I am acquainted to electro motive or galvanic agency."

After the affusion, re-action is soon set up, the heat of the body is re-established, the pulse becomes full and regular, though sometimes reduced in frequency, the thirst is diminished, and frequently perspiration and tendency to sleep are observed.

Cold affusion is used principally in those cases where it is considered desirable to make a powerful and sudden impression on the system: for as a mere cooling agent, it is inferior to some other modes of applying water. Thus it is employed, for the most part, in fevers, and affections of the nervous system. It is objectionable in visceral inflammation, on account of the determination of blood which it produces to the internal parts. Cold affusion has been employed with great benefit in *fevers*, both continued and intermittent. It may be used with safety, according to Dr. Currie and others, "when there is no sense of chilliness present, when the heat of the surface is steadily above what is natural, and when there is no general or profuse perspiration." It is inadmissible during either the cold or the sweating stage of fever, as also in the hot stage, when the heat is not greater than ordinary. In some instances it seems to act by the shock it communicates to the system; for the effect is almost immediate, the disease being at once cut short. The

patient has fallen asleep immediately afterwards, profuse perspiration has succeeded, and from that time recovery begun to take place. This plan of extinguishing a fever, however, frequently fails; and in that event the patient may be in a worse condition; hence the practice is not often adopted. I think the cases best adapted for the use of cold affusion are those in which there is great cerebral disorder,—either violent delirium or a soporose condition. My friend, Dr. Clutterbuck, in his work on Fever, says he has seen pulmonic inflammation and rheumatism brought on by cold affusion in typhus; but he adds, "I have not, in general, observed that the situation of the patient was rendered materially worse by the combination."

In the *exanthemata*, cold affusion has been employed in the fever which precedes the eruption, as also after this has been established; it has been used in scarlet fever, and also in small-pox; likewise in measles; but I would strongly advise you, however, not to employ it in the latter disease, on account of the tendency to pulmonary inflammation, in which cold affusion is prejudicial.

Croup is another disease in which cold affusion has been used with advantage, principally with the view of removing the spasm of the glottis, which endangers the life of the patient.

In *inflammatory affections of the brain*, especially of children, after proper evacuations have been made, it is useful. In many cases of *narcotic poisoning*, cold affusion is of the greatest service. I have already alluded to its employment in poisoning with hydrocyanic acid, and in asphyxia caused by the inhalation of carbonic acid; so also in poisoning with opium, belladonna, and other narcotic substances,—in intoxication,—in asphyxia from the inhalation of sulphuretted hydrogen gas, or of the vapours of burning charcoal,—this practice is most advantageous; and I shall on future occasions find it requisite to draw your attention again to its application. In *hysteria* and *epilepsy* it is oftentimes serviceable: it diminishes the duration of the paroxysms, and relieves the comatose symptoms. In *puerperal convulsions*, Dr. Copland relies on cold affusion and blood-letting. In *mania* it is oftentimes serviceable; as also in *tetanus*.

2. *Cool affusion* has been employed instead of the cold; and in weak irritable subjects it is always preferable. Dr. Currie regards it as a milder form of the cold affusion, as a preparatory means to which it is sometimes used. It has been used in febrile diseases and paralysis.

3. *Of tepid affusion.*—The affusion of tepid water is frequently resorted to as a substitute for that of cold water, where great dread is entertained of the latter agent, or where there is doubt as to the production of a perfect reaction after the application of cold water, or where there is some pulmonary disease. It may be regarded as a safer, though less powerful means. Thus it is very useful in febrile complaints, especially of children. It is very beneficial in scarlet fever, as I have seen on several occasions. Dr. Currie thinks that it reduces the temperature more than cold affusion; first, because the evaporation is greater; secondly, because it does not excite that reaction by which heat is evolved. It diminishes the frequency of the pulse and of respiration, and causes a tendency to sleep. He states that he has not found its effects so permanent as those of the cold affusion; and that he never saw it followed by the total cessation of regular fever. In other words, it produces a much less powerful shock to the system, and, therefore, is less influential over disease. In hectic fever, however, the paroxysm is sometimes completely extinguished by the affusion of tepid water at the commencement of the hot stage.

4. *Warm affusion* excites very pleasant sensations, but which are soon followed by chilliness, and oftentimes by pulmonary affections. It has been used in mania with advantage: it reduces the frequency of the pulse and of respiration, and occasions a tendency to repose; but the effects are much more temporary than those produced by the warm bath.

Washing or Sponging.

Cold, cool, or tepid washing or sponging the body, may be used in febrile diseases, with great advantage, in many cases where affusion is not admissible, or where timidity on the part of the patient or practitioner prevents the employment of the latter. Dr. Currie remarks, that in all cases of fever where the burning heat of the palms of the hands and soles of the feet is present, this method of cooling them should be resorted to. A little vinegar is frequently mixed with the water, to make the effect more refreshing. Washing or sponging must be effected under precisely the same regulations as those already laid down for affusion.

Shower Bath.

The shower bath is similar in its effects to affusion, but milder in its operation, and is mostly employed in chronic diseases, or as a hygienic agent. In various affections of the nervous system, more especially insanity, it is very useful. In many cases it is a valuable agent when we are afraid to venture on the common cold

bath or cold affusion, since it is less likely to cause cramps or other symptoms indicative of a disordered state of the nervous system.

THE DOUCHE, OR PUMPING.

Definition.—The French word *douche*, or the Italian *doccia*, signifies a continued current of fluid applied to, or made to fall on, some part of the body. Dr. Parr states that it is synonymous with our word "*pumping*," and with the Latin word *stillicidium*. At Bath, for example, the waters are applied, say to a paralyzed part, by means of a pump, and the degree or quantity of the application is determined by the number of times the handle is raised or depressed. The water, however, does not issue in gushes, but in a continuous stream. This is evidently what the French would call a *douche*, but I do not think that our word "pumping" is applicable to what they term a "*douche de vapeur*."

History.—It is uncertain at how early a period this remedy was in use. The following passage from Cælius Aurelianus has been supposed by some to refer to this mode of employing water. "Item *aquarum ruinis* partes in passione constitutæ sunt subjiciendæ, quas Græci κατακλυσμοὺς appellant, plurimum etenim earum *percussiones* corporum faciunt mutationem." By some, however, this passage is supposed to refer to affusion.

General operation.—The effects of the douche depend on several circumstances, such as the nature of the fluid employed, whether vapour or liquid, and if liquid, whether simple or some saline water: the temperature also must have an influence, as is very evident,—the size and direction of the jet, the force with which it is applied, and its duration. At Bath, Dr. Falconer tells us, "from 50 to 200 strokes of the pump is the number generally directed to be taken at one time, which, however, may be increased or diminished according to the age, sex, strength, or other circumstances of the patient." On the Continent, it is rarely employed for a longer period than 15 or 20 minutes.

(*a.*) *The vapour douche* is nothing more than a jet of aqueous vapour directed on some part of the body, its action depending principally on the temperature of the fluid, since its mechanical effects are comparatively slight.

Sometimes *steam* has been used—that is, aqueous vapour heated to 212° F.; and, of course, it acts as a caustic if sufficiently long applied, causing sometimes an extensive and deep eschar. In this respect its action is similar to that of boiling water, from which, indeed, it principally differs in the circumstance of having a much larger quantity of specific heat, and in the great facility with which we can localize its effects. It may be readily applied to any part of the body by means of a small boiler (copper or tin), furnished with a pipe and stop-cock, and heated by a spirit lamp. It has been used as a powerful counter-irritant in diseases of the hip joint, neuralgic pains, chronic rheumatism, &c.; but the objections to its use are the great pain and the danger of its employment; for it is a more painful application than many other modes of causing counter-irritation, while its effects are inconstant. In the *common vapour douche* the temperature of the aqueous vapour does not exceed that employed in the vapour baths already described; and in such cases it may be regarded as a kind of local vapour bath. Thus in some affections of the ear, as otitis, otorrhœa, and otalgia, a stream of aqueous vapour may be applied to the meatus auditorius externus with great benefit; and the most ready means of effecting this is by a funnel inverted over a vessel of hot water, the ear being placed over the orifice of the funnel.

(*b.*) *The liquid douche.*—The action of this depends in a great measure on the temperature of the liquid, but in part also on the mechanical effect produced by the striking of a column of water against a living part. This effect of percussion is common to both the cold and hot douche, and by continuance excites pain and inflammation of the part. This local excitement is observed almost immediately when hot water is employed, but takes place more slowly when we use cold water; indeed, the long action of a stream of cold water may act as a sedative, and cause all the effects which I have already described as the primary effects of cold applications.

The effect of the douche, is, however, not altogether local, since the neighbouring parts, and even the whole animal economy, soon become affected. A column of water twelve feet high, made to fall perpendicularly on the top of the head, excites such a painful sensation, that, we are told, the most furious maniacs who have once tried it may sometimes be awed merely by the threat of its application; and hence one of its uses in madness, as a means of controlling the unfortunate patient.

The *cold douche* is applicable to those cases of local disease requiring a powerful stimulus. For example, chronic affections of the joints, of long standing, whether rheumatic, gouty, or otherwise, paralytic affections of the limbs, old glandular swellings, and those forms of insanity in which there are no marks of determination of blood to the head. The

warm douche may be employed in similar cases.

For a variety of local purposes, a syringe is employed to throw a jet of water on particular parts, as into sinuous ulcers, or into the vagina, into the ear, into the rectum, &c., constituting thus a kind of douche.

BOILING WATER, AQUEOUS LOTIONS, FOMENTATIONS, POULTICES.

Boiling water is never employed for internal purposes, but externally it has been used as a powerful irritant and a speedy vesicant; its action being in this respect analogous to steam, already noticed, and objectionable on the same ground, namely, the great pain, and the uncertainty of its effects; in addition to which may be mentioned, the difficulty of localizing its action. When applied in diseases of internal organs, it may be regarded as a powerful counter-irritant. In the application of medicines to the common integuments, by what is called the *endermic* or *emplastro-endermic* methods, the cuticle or epidermis must be in the first place removed; and one of the most speedy ways of raising it is by the application of boiling water; but I think a metallic plate, heated by immersion in boiling water, a much better method of producing the effect.

Hot, *warm*, and *cold* water, applied to particular parts of the body, may be regarded as local baths. I ought, however, to notice, that cold water is applied to the skin in order to produce evaporation, and thereby to generate cold, with the view of relieving local irritation and inflammation. In ophthalmia, phrenitis, and even in gout (though in the latter complaint the practice has been objected to), cold water lotions are employed with great advantage. One method of treating burns is by the application of cold water, and, if I am to judge by my own sensations, it is by far the most agreeable. By some, however, warm water is employed as an emollient application in burns and scalds, and knowing that my friend Mr. Luke, one of the surgeons to the London Hospital, has long employed it in these cases, I requested him to state to me the result of his observations on its use. The report which he was kind enough to furnish me with is as follows:—

" After several years' experience in the use of warm water as an application in the first treatment of scalds and burns admitted into the London Hospital, I am enabled to say, that the general result has been very satisfactory. It has almost in every instance appeared to sooth and mitigate pain, and, in many instances, to facilitate the recovery of the patient from the great constitutional depression so frequently attendant upon cases of severity. In these respects I think it exceeds in value all other means which I have seen used. It also appears to me to have exerted a very beneficial influence in mitigating the consecutive inflammation, rendering the after consequences less severe locally, and the reparative process more speedy, than under other modes of treatment. The most striking exemplifications of its value have been seen in the treatment of the scalds and burns of young children; and of those cases where the vitality of the skin has not been completely destroyed. The water has generally been used in the form of fomentations, repeatedly changing the flannels, and taking care that the surface of the skin was exposed as little as possible. The occasional use of poultices has also been adopted, and with much benefit; although their weight, when large, has rendered them not so convenient as fomentations; they obviate, however, the evil arising from the frequent renewal of the latter, and the consequent mechanical irritation. Inability to continue the warm bath for the requisite length of time has been the reason for its not being used in these cases."

Warm fomentations and poultices (made of bread or linseed meal) may be regarded, in reference to their effects, as a kind of local bath.

INTERNAL USE OF WATER.

1. *Taken into the stomach.*—*Cold water* was employed as a drink in *fevers* in the time of Hippocrates, who, as well as Celsus, Galen, and others of the ancients, strongly recommended its use. Celsus, in speaking of ardent fever, says, " cum vero in summo incremento morbus est, utique non ante quartum diem, magna sit antecedente, frigida aqua copiose præstanda est, ut bibat etiam ultra satietatem."

Cold water constitutes the *febrifugum magnum* of Dr. Hancock. We are indebted to Dr. Currie for examining the circumstances under which its exhibition is proper. According to him, it is inadmissible during the cold or sweating stage of fever, but may be employed with safety and advantage when the skin is dry and burning. In other words, the regulations for its administration are precisely the same as for the cold affusion. When exhibited under proper circumstances, it acts as a real refrigerant, reducing preternatural heat, lowering the pulse, and disposing to sweating. I ought, however, not to omit noticing, that serious and even fatal consequences have resulted from the employment of large quantities of cold water by persons who have been rendered very warm by exercise and fatigue. Besides fever,

there are many other affections in which cold water is a useful remedy. For example, to facilitate recovery from an attack of epilepsy or hysteria, and also in fainting, a draught of cold water is oftentimes beneficial. There are also various morbid states of the alimentary canal in which cold water may be administered with advantage; for example, to diminish irritable conditions of the stomach, and to allay vomiting and gastrodynia. Large quantities of cold water have sometimes caused the expulsion of intestinal worms (both the tænia and oxyuris vermicularis, or small thread worms, commonly termed ascarides, and which are found in the large intestines of children, particularly in the rectum). Salt water acts more efficaciously, as I shall hereafter have occasion to notice.

Tepid and *warm* drinks are employed for various purposes; as for promoting vomiting, to dilute the contents of the stomach, and render them less acrid, as in cases of irritant poisoning; but you will of course bear in mind, that in poisons, acting by absorption, diluents are objectionable, since they facilitate this process, and, therefore, ought not to be employed unless vomiting is taking place, or you have the stomach-pump at hand. Warm aqueous drinks are administered with the view of exciting diaphoresis, as in gout, rheumatism, catarrh, &c., and to promote their operation you had better keep the patient warm in bed, in order to determine to the surface. Warm liquids are oftentimes used as emollients; for example, to allay irritable and troublesome cough, particularly when this appears to depend on irritation at the top of the larynx.

2. *Injected into the rectum.*—Clysters of water, usually tepid, are employed to excite alvine evacuations. I have already mentioned my opinion, that the repeated introduction of several pints of liquid into the rectum is objectionable; since, by distention, the gut becomes less susceptible to the natural stimulus of the fæces. *Cold water* is thrown into the rectum sometimes to check hæmorrhage—to cause the expulsion of worms (the small thread-worm)—to allay pain—in poisoning with opium—in inflammation of the bowels, and in various other cases. *Warm water* is sometimes employed to promote the hæmorrhoidal flux, and thereby to relieve affections of distant organs; as an emollient, to diminish irritation either in the large intestine itself, or in some neighbouring organ, namely, the bladder, prostate gland, or uterus; to promote the catamenial discharge, &c.

3. *Injections into the vagina.* — Dr. A. T. Thomson speaks very favourably of the use of cold water applied in uterine hæmorrhages by means of the stomach-pump, and he says he has seen it employed in several cases most successfully. Warm water may be used to diminish irritation or pain in the womb,—to promote the lochial discharge, &c.

4. *Injections of water into the bladder* are sometimes employed; either to diminish irritation in this viscus, or to distend it previously to the operation of lithotrity.

5. *Injections into the urethra* have also been used to allay irritations, or to check discharges from the mucous lining.

6. The *inhalation of aqueous vapour* acts as a serviceable emollient in irritation or inflammation of the tonsils, or of the membrane lining the larynx, trachea, or bronchial tubes. It may be employed by means of Mudge's inhaler, or by merely breathing over warm water. Various narcotic and emollient substances are frequently added to the water, without increasing the therapeutical power. In some pulmonary complaints, Dr. Paris states he has been long in the habit of recommending persons confined in artificially warmed apartments to evaporate a certain portion of water, whenever the external air has become excessively dry by the prevalence of the north-east winds, which so frequently infest this island during the months of spring; and the most marked advantage has attended the practice.

7. The *injection of warm water* into the veins was proposed by Magendie as a remedy for hydrophobia, but it has neither theory nor experience to recommend it. However, in a disease which has hitherto resisted all known means of cure, practitioners are glad to try any remedy that may be proposed, however improbable or unlikely of success. I have already mentioned* a case in which I tried warm water injections, but without much benefit. Verniere has proposed to distend the venous system with warm water, to check or stop absorption in poisoning, by those agents whose operation depends on their absorption; for example, opium. I am not aware, however, that it has been tried on the human subject. Warm water is sometimes a medium for the introduction of other more powerful agents into the circulating system, as, for example, tartar emetic.

Medicamenta hydrolica.

The *pharmaciens* of Paris have for several years past adopted a new pharmaceutical nomenclature, originally proposed by M. Chereau; and I propose from time to time to offer you some specimens of it. On the present occasion I shall allude to those medicines which are called *hydroliques*; a term meant to include all those

* Medical Gazette, vol. xvii. p. 135.

preparations consisting of water charged with medicinal substances. When procured by solution or mixture, they are denominated *hydrolés;* but when distillation is employed, they are called *hydrolats*.

1. *Hydrolés.*—These are subdivided into mineral, vegetable, and animal. Of *mineral hydrolés*, or *hydrolés chimicobasiques*, I may mention, as examples, goulard water, the arsenical solution, lime water, the solution of iodide of potassium, &c. As instances of *vegetable hydrolés*, or the *hydrolés phytobasiques*, I may cite almond emulsion, vegetable infusions, and decoctions, mucilage, &c. The *animal hydrolés*, or *hydrolés zoobasiques*, are commonly termed broths.

2. *Hydrolats.* — These are the *distilled waters*, and are too well known to require further notice.

SOME FURTHER

REMARKS ON THE PROTECTIVE POWER OF VACCINATION.

To the Editor of the Medical Gazette.

SIR,

THE frequent failure of vaccination to continue its protective power (wholly or partially) after the lapse of several years, to those whom it secured from small-pox in early childhood, has made its friends alive to every suggestion for increasing its efficacy, and the confidence which, on the whole, it still continues to deserve from the public. On one or two of these suggestions I shall beg leave to make some remarks.

One is, that the virus of cow-pock is becoming, as it were *effete*, by its long and uninterrupted transmission through the human subject; that its effects are now almost exclusively confined to the production of local vesicles; and that it therefore becomes necessary to renew the parent stock by insertion of virus from the cow.

But as most of the practitioners who have been engaged, even for a long series of years, in vaccination, have never seen the disorder in the cow, it is of some importance that they should be aware what it is, and to what extent it affects the constitution. We cannot do better than to recur to the original report and experiments of the illustrious inventor of vaccination.

Dr. Jenner, in the first treatise, in the year 1798, which introduced the subject to public notice, entitled, "An Inquiry into the Causes and Effects of Variola Vaccina, a disease dicovered in some of the western counties of England, particularly Gloucestershire, and known by the name of the Cow-Pox," gives the following description of the disease, both in the cow and the human subject:—

"It appears on the nipples of the cows, in the form of irregular pustules. At their first appearance they are commonly of a palish blue, and are surrounded by an erysipelatous inflammation. . . . . . The animals become indisposed, and the secretion of milk is much lessened. Inflamed spots now begin to appear on the hands of the domestics employed in milking, which quickly run on to suppuration. . . . . . Absorption takes place, and tumors appear in each axilla. The system becomes affected; the pulse is quickened; and shiverings, with general lassitude and pains about the loins and limbs, with vomiting, come on. The head is painful, and the patient is now and then even affected with delirium. These symptoms, varying in their degree of violence, generally continue from one day to three or four, leaving ulcerated sores about the hands, which, from the sensibility of the parts, are very troublesome, and commonly heal slowly; frequently becoming phagedenic, like those from whence they sprung."

Dr. Jenner then states the well-known fact, that persons who have gone through cow-pox taken in this way, remained ever after unsusceptible of small-pox; and this he confirmed by inoculating with the latter disease, but without effect, persons who had gone through the disease from the cow at various periods of their life—from twenty to twenty-five years.

Let us now see what was the effect of transmitting the cow-pock virus from one human subject to another. The first patient ever vaccinated in this way was a healthy boy, eight years old; in whose arm Dr. J. inserted, by means of two superficial incisions, some matter taken from the sore of a dairy-maid who had been infected by her master's cows. The date of this original experiment is the 14th of May, 1796; nearly forty years ago.

Dr. Jenner's report of this case is the following:—"On the seventh day he complained of uneasiness in the axilla, and on the ninth he became a little chilly, lost his appetite, and had a slight

headache. During the whole of this day he was perceptibly indisposed, and spent the night with some degree of restlessness; but on the day following he was perfectly well." The appearance of the incisions in their progress to maturation, he states, resembled that of variolous matter, only that the fluid in this case was more limpid, the efflorescence more of an erysipelatous look, and the whole died away without giving the least trouble, leaving scabs and eschars on the inoculated part.

In the following year a child was inoculated with matter taken immediately from the cow. He became indisposed on the sixth day, vomited once, and felt the usual slight symptoms till the eighth day, when he appeared perfectly well. The inoculation of several children and adults from this source followed, most of whom were stated to have sickened on the sixth day, and were well on the seventh; but in three, a secondary indisposition arose, in consequence of inflammation on the arm, which, however, soon subsided. All these were afterwards tested with small-pox inoculation, and resisted its effects.

Three years afterwards, Dr. Jenner inoculated a considerable number of persons from virus obtained from Dr. Marshall, the source of which was an infected cow in a London milk farm; and all of them showed the same mildness, not only in comparison with small-pox, but also with the disease as produced in the milkers' hands, by casual infection. Dr. Jenner concludes by the following paragraph, so much to the point in question. "Whether the nature of the virus will undergo any change from being further removed from its original source, in passing successively from one person to another, time alone can determine. That which I am now employing has been in use nearly eight months; and not the least change is perceptible on its mode of action, either locally or constitutionally. There is, therefore, every reason to expect that its effects will remain unaltered, and that we shall not be under the necessity of seeking fresh supplies from the cow."—*Continuation of Facts, &c.*, 1800; p. 22.

Let it be granted that the experience of forty years has so far compelled us to modify the inference which Dr. Jenner drew from his first experiments as to shew that we cannot always depend on the test of very early exposure to small-pox after vacination, as a security for the remainder of life, this, at least, is certain, that the cow-pox, as soon as it was transferred to the human subject by artificial insertion, (and even in one or two cases by direct inoculation from the infected animal) was *immediately* brought down to a state hardly, if at all, different from that in which we daily see it; though it must now, on a fair computation, have passed through a thousand successive subjects, since each transmission occupies no more than a week in regularly sustained practice. We still can generally detect a slight sickening about the fifth or sixth day; more decidedly so in older children and adults than infants, but chiefly, I believe, owing to the inability of the latter to describe the symptoms, and from the frequent interference of other slight causes of derangement of the functions, especially during the long period of dentition, which makes it difficult to distinguish the sickening which is due to vaccination alone. That some constitutional effect is produced by vaccination is still shewn by the unanswerable test of re-vaccination during the early progress of the first vesicles, as proposed by Mr. Bryce, those of the later insertion being thereby hurried in their course, till they overtake the former, and the final areola round both being simultaneous.

What advantage, then, are we likely to obtain by recurring to the original source from the cow? Is it not most probable, that after one or two transmissions through the human subject, we should then obtain a virus, neither more nor less active than that which we are now using, unchanged by more than thirty years' incessant re-production?

I think it not at all unlikely that the casual disease, as it still appears in the hands of the milkers, does in fact afford a more perfect security from small-pox than that which follows common vaccination; though this is not borne out by the analogy of small-pox itself. It should be remembered, however, that cow-pox is not always the mild and easy disorder which follows the vaccine lancet; and if it does not endanger life in robust farm-servants, even in them it produces such a degree of indisposition and local suffering, as deserves calculation when young infants are to be the subjects. If less than this will not suffice for perfect security, what parent

would not shrink, what surgeon would not hesitate, to pass the hand of a delicate infant over the ulcerated teat of a diseased cow, even were it always at hand, to yield its virus in due activity? And this leads to another suggestion, on which I wish to make some remarks, namely, the propriety of infant vaccination.

One of your correspondents, Mr. Grantham, of Crayford *, suggests that the vaccine inoculation is not so likely to produce its full constitutional effect on suckling children, as on those of a more advanced age; and he gives a few examples to confirm this opinion. This leads him to propose, as a general rule, "that no child should be vaccinated during the period of lactation;" by which he means "the first nine months."

Every suggestion from a respectable source, and which claims to be founded on personal experience, demands attention; though I believe this opinion would not be found ultimately correct, if tried by the long and well-combined experience of a multitude of accurate observers, which alone could fairly establish so general an inference. Neither is it supported, that I am aware of, by any observed analogy.

I know of no reason why the constitution of infants, deriving their food from their mothers' breast, should on that account be less liable to undergo that inexplicable change during the first attack of this disease, which protects them from a second for the rest of life. Nor do I believe that the few other diseases of similar character afford any confirmation of this opinion.

But be this as it may, as security from small-pox is the great object of the parent, it is obvious that this delay of vaccination can only apply with propriety to those cases in which infants are brought up in remote and retired situations, and are not permitted to wander beyond the bounds of their nurseries or secluded grounds; and moreover, who possess that habitual good health which will enable them to contend with casual variolous contagion on fair terms, should it unfortunately stray within their reach. It was a most valuable discovery, that of disarming this dreaded disease of its worst terrors, in the greater number of instances, by inoculation; but every careful practitioner, before he thus introduced small-pox, thought it necessary to select his patients, and to prepare them by previous diet and medicine. A weak, sickly infant, or one hardly recovered from some trying disorder, was rejected by the inoculator, and was most scrupulously removed from the focus of infection. Compare this with infant vaccination, communicating nothing but by actual insertion, at all times safe, even a few hours from birth, when demanded by the presence of unavoidable variolous contagion; equally easy to be imparted, and correct in its progress at any age; and which seldom, if ever, need be refused to the most infirm and weakly child, except during the actual presence of some specific disease, or of a few forms of cutaneous eruption.

But it is chiefly in large populous towns that this opinion of the inexpediency of early vaccination would prove the source of infinitely more evil than that which it could ever be reckoned on preventing. The infant who is the sole object of care to one attendant, who occupies a spacious nursery, takes daily exercise within the privileged rails of a London square, and is (or is supposed to be) anxiously secluded from any intercourse with the crowds who fill the adjacent streets, may have a fair chance of escaping this dreaded contagion during all the first months of childhood; but who shall protect the child of the labourer,—of the industrious artizan,—of the petty shopkeeper,—of that large class who form the bulk of those who now derive benefit from the public establishments for gratuitous vaccination? All these are well and respectably housed when they occupy an entire floor of a fourth-rate tenement, their apartments opening into a landing six foot square, and reached by a narrow staircase common to all. Supposing a single case of small-pox to occur under a roof thus tenanted, who can calculate the risk of infection to an infant cradled in any part of it during the long period of, perhaps, three weeks of incessant danger, considering the degree of promiscuous intercourse which the common wants of all the inmates demand, and the utter neglect of any thing approaching to quarantine regulations in these crowded abodes? Nor is the out-door risk to the infant trifling, when small-pox is rife. The mother, if a small

* Med. Gaz. Feb. 20th.

shopkeeper, is constantly seen serving her customers with her child in her arms; it must either accompany her when out on her needful business, or is perhaps trusted to the care of a young girl, who loiters on her errands on paved steps or blind alleys, always thronged with children of all ages, among whom the convalescent from small-pox is glad to take refuge, from the crowd that encumbers the public streets.

On consulting my register of vaccination, I find, as I shall presently state, that rather more than two-thirds of the whole number that apply are infants not exceeding the age of nine months; and I think the proportion in private practice is not at all lower. Many mothers, indeed, delay weaning their infants till after vaccination, with the feeling (natural enough to mothers) that all their troubles, great or small, are better borne when they have the breast to pacify them. In short, I hardly know any opinion that would prove a greater obstacle to the diffusion of the blessings of vaccination, than that of its inexpediency during the first nine or ten months of infant life.

I shall conclude with a few particulars of what may be called the *statistics* of vaccination, derived from the experience of many years as surgeon to one of the stations of the National Vaccine Establishment. The station is in the centre of Bishopsgate parish, in the city of London. I may premise, that the majority of applicants are not among the very lowest class, nor can they with any justice be called *paupers;* but are, for the most part, I believe, of the class of journeymen, or *operatives*, in one line or another. I may also add, that I am often struck with the large proportion of fine healthy children amongst them, who shew in their dress and about their persons nothing of the foulness of skin, and ragged squalidness, that attend utter poverty and neglect.

Selecting nearly the last four thousand patients, in the order in which they stand in my register-book, as affording a sufficient number for a fair average, their ages are as follows:—

377	under three months.
2342	above three months, and not exceeding nine.
1281	above nine months.
4000	

It appears, therefore, that 2719 of the 4000, or 68 per cent. of all that apply, are not more than nine months old; and probably quite as many are children actually at the breast; for although some of these may be already weaned, a great many remain sucklings some months longer, from the obvious motive in the mothers to delay a further increase of family. Of the 1281 above nine months, a very few only were adults; and most of these were merely tested by inoculation, to ascertain the permanency of the protection produced by a previous operation.

I regret that though the numbers in my register are gradually mounting to several thousands, I can make no satisfactory approach to determining the proportion of failures to the successful cases. This arises from the neglect in patients to attend a second time—a neglect which we all have to complain of in our public stations. Out of the 4000 above mentioned, no less than 1409 never appeared after the first inoculation; and 69 more, out of about 160, in whom the operation was repeated. This must no doubt be partly attributed to the vaccination not taking at once, and the mothers, perhaps living at an inconvenient distance, and with difficulty persuaded to come at all, not being inclined to trouble themselves further about the matter. But on occasionally visiting them at their own houses on the eighth day, when pressed for a supply of virus, I have more commonly found what I was in search of; and then non-attendance has been owing to their taking for granted (as, in fact, they generally do, say what you will) that the disorder, when once in progress, will go on very well to the end, without further advice or inspection. A very prevailing prejudice, against opening the vesicle, also keeps away many. I can, therefore, only give the proportions as they stand, and with the above-mentioned limitation.

Deducting from the 4000 patients, 1478, who failed to attend after the first and second inoculation, and also 50, who were merely tested to ascertain their security after a former vaccination, there will remain 2742 first cases, who were seen again on the eighth day, and, when necessary, on the tenth or the eleventh, and in whom the result is as follows:—

2387	2315	satisfactory after first inoculation.
	72	satisfactory after second ditto.
85		entirely failed, or irregular from various causes.
2472		

These numbers would give one entire failure, and twenty-eight that succeed; but, for the reasons above mentioned, I cannot at all depend on the accuracy of the inference.

The reasons for repeating the vaccination (which was almost always done on the eighth day from the first) were, either that it had totally failed, or else, that out of eight punctures that I usually make (four in each arm) perhaps only one had taken, and this, though correct in appearance, was languid, small, and not well advanced. In twelve of these cases, the second insertion, when succeeding, shewed Bryce's test in a most unequivocal manner; a regular areola, simultaneous in both the earlier and later vesicles, coming on four or five days after the second operation. When the vesicles are not correct on the eighth day, I do not re-inoculate them; but recommend the patients to return after some months.

Some of the incorrect varieties are the following:

1. When the vesicles are prominent, very itchy, and the contained fluid yellow, and approaching to pustular. These soon become covered with an amber-coloured scab, which is constantly renewed by scratching; differing in this respect from the perfectly correct vesicle, which gives little, if any, local irritation, and therefore may be kept unbroken, except by accident, during its whole progress. In this itching vesicle the period of the areola is, however, distinctly marked, though, perhaps, this inflammation is somewhat hastened and much diffused. It is generally connected with some cutaneous irritation during dentition, and notably with the oozing of acrid humour from cracks behind the ears. It is not unlikely that, in most of these cases, where the areola is decided, the vaccination would be sufficient for security; but it is not safe to trust to it, without a further test at some more distant period.

2. When the vesicles are very pale, flat, containing scarcely any fluid, and that not quite limpid, but somewhat milky. If raised by the hand, they feel quite loose and flabby on the eighth day, instead of being already hard and red at the base. This state is not unfrequently produced by much purging, and therefore often appears at the end of summer, when children are thus affected. By attending to the bowels, these cases commonly creep on to an areola, late in time, but on the whole satisfactory. Sometimes, however, the occurrence of a sprinkling of small-pox pustules, or the eruption of measles, explains the cause of this irregularity.

3. Now and then there are cases in which the only variety is the complete formation of the areola on the eighth day of vaccination. Where this is the only variety, I presume the future security from small-pox is not affected by it. In eleven cases I have met with a hastened areola on second vaccination, where (the first having totally failed) the operation is repeated on the eighth day of the original inoculation. In a week more, the second punctures have shewn a completed areola, the first punctures having never risen at all. I have noticed this in my former communication on the subject (Med. Gazette, Feb. 15, 1834), to suggest whether it might be supposed possible, that the virus of the first insertion, though not active enough to induce the disease, might, in some way, prepare the constitution for the second, and hasten its course of maturation.

One important thing is still wanting to our estimates of the exact value of vaccination, which is, a fair statement of the proportion of cases of small-pox, mild and severe, occurring after it, amongst a given number of those who have been fully exposed to this contagion at various times, and during several years. This estimate cannot be made in stations for mere vaccination, where the patients (nearly all of them children of the working class, who are constantly changing their abodes) lose all connexion with the surgeon as soon as the disorder produced by it is completed. It would be useful, however, if every practitioner were to make notes of all the cases of small-pox after vaccination, of every degree of severity, that occur within his personal knowledge; but we must look to the inmates of asylums and charitable establishments, to regiments, and generally to those who remain for several years under inspection and control, to be the

subjects of a second and experimental vaccination, by which the proportion and the permanence of the security afforded by the first may be reasonably inferred.—I am, sir,

Your obedient servant,

C. R. Aikin.

Great James-street, Bedford-row,
March 17, 1836.

OBSERVATIONS

ON

CACHEXIA AFRICANA, OR DIRT-EATING.

By F. W. Cragin, M.D.

[Communicated by Professor R. D. Mussey.]

This disease, termed also "mal d'estomac" by the French, is common and too often fatal in the West India islands, and that part of South America known under the general name of Guiana. It is now carrying off numbers in the colony of Surinam with as much certainty as phthisis pulmonalis is in the United States, scarcely a single well-confirmed case being cured; nor is it curable by the common mode of treatment there pursued, from a mistaken view of the pathology of the disease. No age beyond three or four years at the farthest enjoys an immunity from its ravages.

The first symptoms are ordinarily fever at irregular intervals, succeeded by sluggishness, which, as the disease advances, nearly amounts to insensibility. The face, the upper and lower extremities—in fact, the whole external surface, is of an unnatural shining fulness and rotundity, yielding in a slight degree to the impression of the end of a finger pressed strongly upon the part, leaving a depression after the finger is removed. This is especially the case with the feet and ankles, while in other parts no such depression is made; these last approaching in that particular more nearly to the state of elephantiasis than to œdema.

The conjunctiva is of a peculiar snowy whiteness, untinged by a particle of red blood, while the eyes participate in the general fulness, making them appear somewhat prominent, and giving to them altogether a sort of unmeaning yet characteristic stare, which, so far as my observation goes, is peculiar to this complaint. The marble paleness of the lips, of the palms of the hands, and of the soles of the feet, indicates an impoverished state of the blood. The diagnosis may be nearly formed from the pallid appearance of the lips, the gums, and the whole membranous lining of the mouth, and from the condition of the tongue, which in health performs its duty with so much alacrity, lying bleached and bloodless, scarcely able to represent the motives of its owner.

The patient evidently suffers from a sense of cold, as is evinced from an inclination to bask in the sun's rays, even in the hottest part of the day.

There is much palpitation and throbbing of the temporal arteries, while the pulse at the wrist is small, frequent, and slow; quicker, however, after the slightest exercise, after eating, and on the approach of evening.

The secretions are generally diminished; perspiration is suppressed, the urine is scanty, and there is an apparent total suppression of the bilious secretion. Costiveness generally prevails in the commencement of the disease, but in its more advanced stages the alvine discharges are increased in frequency, differing from four to ten or more in four-and-twenty hours, of a thin consistency, and unmixed with bile. In the confirmed and further advanced stages of the disease, a few hours are sufficient after deglutition for the digestion of the food, when it appears in some cases to have undergone a slight, and in other cases no change whatever, in its passage through the alimentary canal. The stools, however, become more watery, dark, and fœtid, as the disease draws to a close.

The appearance of blood drawn from the arm is invariably unnatural; it is thin and watery, of a livid purple hue, assuming neither the bright red of arterial, nor the dark red of venous blood; and wanting the consistency of either, it presents that semiturbid appearance which is a concomitant of a gradual but general decay of the powers of life.

The liver or spleen is generally increased in size, not unfrequently both. The lymphatic glands are enlarged, and frequently indurated; often fifteen or twenty, or even more, of the inguinal glands may readily be distinguished by the feel, and many of them may be seen

* American Journal of Medical Sciences, Feb. 1836.

forming a tumor of no ordinary size in the groin.

Another essential and leading symptom of this disease, is a universally depraved appetite, and an ungovernable determination to the eating of dirt. The only appreciable signs of mental activity exhibited during the course of this disease, are the crafty and cunning plans which the patient most subtilly matures, and as stealthily executes, to procure his desired repast. This consists usually of charcoal, chalk, dried mortar, mud, clay, sand, shells, rotten wood, shreds of cloth or paper, hair, or occasionally some other unnatural substance. Some pick and eat shreds from the garment they wear, till it can no longer be kept upon them; others swallow with avidity the hair which they pick from their own heads, until they are nearly bald before they are detected. Some negroes eat their tobacco-pipes, and those of the other negroes. I was informed by a gentleman of the strictest veracity, that a negro on his plantation was thus morbidly fond of young rats, which he swallowed whole. The man, he had observed, had been declining for some time, and at length declared himself unable to perform his accustomed labour; he was accordingly ordered to the lazaret of the plantation, where the gentleman shortly called to see him; he found him with an empty calabash in his hand, with nausea, pain in the stomach, and a disposition to vomit. After labouring for a moment, he "brought forth" (from the stomach) "a mouse." There was not a single mark of mastication upon the little hairless quadruped, nor had it apparently been many minutes incarcerated; but, probably, being swallowed alive, irritated the stomach, and produced vomiting, by its movements in its last struggles for life. The negro then acknowledged having thus indulged himself, so far as had been practicable, for months.

Peculiar to children under the age of ten or twelve years, and, late in the course of this disease, a state of ulceration often comes on, mostly confined to the cuticle and cutis vera of the feet, legs, and thighs; but sometimes the nates, as well as the hands and arms, are also affected. I seldom had an opportunity of noticing the progress of this ulceration until it had established itself in the true skin. It appears, however, from observation and inquiry, that at the commencement one or more small whitish and nearly round spots are observed about the ankles and feet, which somewhat resemble the first appearance of that also frequent and fatal disease, the "lepra," with which, however, it has no real connexion. The spots in the disease under consideration are of a deadly pale cast, or ash colour, while those of leprosy assume a more lively and cupreous redness. These spots or discolorations become daily more evident, until at length the cuticle gives way; others successively appear, and, advancing in the same manner, also ulcerate. The number of ulcers is, in some instances, very great, from constant accessions, while none are disposed to cicatrize, and in other and very severe cases the whole number does not exceed three or four.

These ulcers gradually increase in circumference and depth, till the cutis vera is penetrated; some of them are at length confluent, others remain unconnected, and in the most loathsome cases, the feet, legs, thighs, and sometimes the nates, present one broad surface of ulcers, some small, and others running into each other, forming patches of greater or less extent.

When this ulcerative process commences, there is frequently mixed with the fæces a small quantity of blood; and in one case which I saw, attended with prolapsus ani, the lower part of the rectum was thickly studded with ulcers, small, but in other respects similar to those situated externally.

These ulcers of the skin are of the indolent kind; they have no raised or bordered edge, and actually discharge but very little, their surfaces being merely kept moistened by a colourless and apparently bland fluid, with no palpable signs of granulation. In this state of the disease the patient becomes more anasarcous, not alone in the extremities, but the whole body, inasmuch that the features, however familiar they may have been, are quite obscured in the general tumefaction.

The diagnosis in this disease is by no means difficult; yet the patient, when accused of dirt-eating, which is too often urged as a voluntary crime rather than an irresistible disease, invariably denies the charge. Under these circumstances it may be necessary to resort to stratagem to detect him in the act, and make him feel and know that further

prevarication is useless. If indigestible substances are swallowed, it is only required to wash the fæcal dejections in water. After frequent rinsings the residual indigestible material decides the point at issue. In Surinam, the result of such a process is frequently a quantity of broken shells. The town of Paramaribo being partially situated upon a bed of marine shells, and the streets and walks of plantations, as well as of the town, being made and repaired with the same material, it is very often seized upon by dirt-eaters to appease that appetite which gives the character to this disease.

As curative means, neither promises nor threats (even when put in execution), nor yet the confinement of the legs and hands in stocks and manacles, exert the least influence, and their preventive effect is as temporary as their employment—so great is the depravity of the appetite, and so strongly are the unfortunate sufferers under this complaint subjected to its irresistible dominion—a metallic mask, or mouth-piece, secured by a lock, is the principal means of security for providing against their indulging in dirt-eating, if left for a moment to themselves; nor does this effect a cure, or save the life of the patient.

The "Dictionnaire des Sciences Médicales," under the head of mal d'estomac, mentions several cases of remarkably diseased appetite; but so close is the connexion, amounting almost to identity, with chlorosis, that it would seem very little was known of the former, as a separate disease, unconnected with the latter.

Dr. John Mason Good also assigns as causes for Limosis Pica, (which he says has been called mal d'estomac, or cachexia Africana,) pregnancy, chlorosis, and some species of mental emotion, and considers it to be a primary affection only when it is occasioned by the vanity of persons who accustom themselves to some empirical material, with a view to improve the form or complexion.

In a work published in London in 1811, entitled "Practical rules for the management and medical treatment of negro slaves in the sugar colonies, by a professional planter," the author, in speaking of mal d'estomac, or dirt-eating, says, "it is the effect of relaxation, and its natural concomitant an impoverished state of the blood, arising commonly from mean diet, and may be produced by any other cause which induces a laxity of the solids." "The power of the passions," he observes, "in producing that effect, is very well known; and we find that negroes labouring under any great depression of mind, from the rigorous treatment of their masters, or from any other cause, addict themselves singularly to the eating of dirt."

Without being competent to remedy the defect in our medical knowledge, I am confident the true causes and means of cure have never been well understood. Many scientific authors who mention this disease have evidently no experimental knowledge of it; and others, who have had opportunities for information, have too generally confined themselves to superficial observation and pre-established opinion.

When we reflect that dirt-eating respects neither age nor sex, there needs no further argument to prove it to be a distinct disease, and in no way connected with chlorosis or pregnancy; and there is sufficient reason to believe that the disposition to eat chalk, clay, earth, and other absorbents, arises from an acidity of the stomach, which is so troublesome in chlorosis and pregnancy, but which—the opinions of others notwithstanding—I have learnt, is by no means a general attendant upon the disease under discussion. From the fact that no age, from a few months, or years at most, is exempt from its ravages, we can neither admit as a cause an accustomed use of empirical materials, nor a melancholic or any other affection of the mind. The effect has been mistaken for the cause. The universal stupor and inertness of the faculties, both mental and corporeal, is an effect of the disease —not a cause arising from a bereavement of friends and home, or joys and kindness: and it may not be amiss to mention the following, one of the many facts that go to prove this position. Persons living on the same plantation, perhaps on the identical section of the same plantation, on which they were born and reared, with all their friends around them, and by indulgent masters and owners, who are themselves the *real* slaves, while the owned are only *nominally* so, provided with ample food, raiment, and, if necessary, medical aid, are also subject to this malady.

The intellectual powers probably suffer in some ratio, depending upon the extent of the disease, and the dominion it obtains over the bodily powers.

As I have observed, wherever the disease is met with, the patient is listless and stupid almost to idiocy, and apparently regardless of comfort, or even of life itself. That superficial observers should look upon this, in adult negroes, recently kidnapped and carried into slavery, as a cause, is not wonderful; but the fallacy of such an opinion is evident from the fact, that this same mental and corporeal torpitude prevails as one of the most prominent features of the complaint, alike in the free and in the bound—in the adult and in the child—in the foreigner and the creole—in the mulatto, mustese or castese, or and in the negro. With regard to the dark spots occasionally observed upon the tongue, resembling spots of ink, they are neither indicative of this nor any other disease—they are perfectly compatible with health, but are seldom met with. They are confined, I believe, to people of colour, and occur as often in the healthy as in the unhealthy, and perhaps depend upon accidental deposits of black pigment, to which is owing the colour of the skin.

How far constitutional peculiarities may predispose to this disease, I am not prepared to say; their influence is probably slight; there are, however, probably few diseases which are not in one way or another affected by various internal and external circumstances, though these are, nevertheless, not considered as causes. I have seen no evidence of its being hereditary. An improper diet is one cause of this complaint, but I knew of instances where the patient was not subjected to such a diet; and, of course, it is not the only cause. Exposure to cold, as from sleeping in damp situations without suitable covering, is another cause.

From the insidious manner in which the disease under notice makes its inroads upon its victims, and the great care they take in concealing it, or, what is more likely, from a general belief that it is irremediable, I have seldom been called (during a practice of nearly five years in Paramaribo) to administer to a patient labouring under this frequent malady until the ulcerative stage had commenced, and the fate of the patient been thereby irrevocably sealed. Many of the cases that came under my view, I met with accidentally, and to most of them it was inconvenient, if not impossible to return. I had, however, determined upon investigating the subject, and ascertaining if it were possible to devise some better mode of treatment than was generally practised. I left the colony soon afterwards, having proceeded but little way in my investigations. Opportunity may again offer, when I shall resume my attention to this disease; and in the meantime, if there can be disclosed a method of cure which is successful, it will enlighten at least one, and not improbably prevent the otherwise premature death of many.

MECHANICAL PHILOSOPHY AS APPLIED TO MEDICINE.

ABSTRACT OF A LECTURE

By Dr. Birkbeck.

Dr. Birkbeck delivered at the Aldersgate school, on Saturday last, the first of a series of lectures on Mechanical Philosophy, considered in reference to the contrivances in the human fabric which are strictly mechanical. He began by stating that a discriminating examination of the varied phenomena which occur in the material universe would suggest a division, in relation to their causes, into three well-marked classes; the first consisting of those events which have an antecedent or cause, immediate and visible, and acting at once for the production of the effect, as we observe amongst the most common occurrences in brute inorganized matter; the second comprehending those events which originate from distant unconnected agency, but respecting the cause of which there exists no more doubt than in the preceding instances,—such are the curvilinear motions of the earth and moon, and the periodical movements of the waters of the earth, all occurring demonstrably by a distinct force, without any cognizable intervening agent; and the third including those movements of animated beings of which the cause is immediate and adjacent, but not in any degree more visible or better understood than the former. It was for the investigation of the instruments by which these undiscoverable causes operate, that these lectures were undertaken.

Man, the Doctor asserted, is unquestionably a machine, but unlike every other machine, in possessing a capability of beginning and continuing motion, and consequently of exerting force, without actual mechanical power. If the arm be now raised by an act of volition, gravity, he observed, is as effectually overcome as by weight or impulse; yet what relation, it may be asked, is there betwixt volition and weight, impulse or pressure? At the same time the vital influence, it must be admitted, although not itself mechanical, is rendered effectual by mechanical means, and the knowledge of such means becomes consequently essential to the clear understanding of the result of vital forces.

The Doctor then proceeded to speak of the mechanical powers, as they are usually termed, or as he should prefer calling them, the mechanical *expedients*, as they could not in any sense of the word have power justly ascribed to them. He stated that six were usually enumerated—*the lever, the wheel and axle, the balance, the pulley, the inclined plane, the wedge*, and *the screw;* but that three—the lever, the cord, and the inclined plane, might be shown to represent the whole. They were, however, each described and exhibited in succession; and the different species of the *lever* with which the description commenced, were detailed, their modes of action described, and the method of calculating their respective powers exhibited. After stating in what cases in common life the three kinds of levers were employed, the action and efficacy of a compound lever was strikingly represented by the large weight and its inconsiderable counterpoise. The *wheel and axle* was shown to be an uninterrupted succession of levers revolving round a common support; and the ratio of the power to the weight, when an equilibrium prevails, was proved to be the same in the radii of the wheel and the axle as that of the two arms of a lever of the first kind. The *balance* was quickly dismissed, as being only employed for the comparison of weights; and the influence of the *pulley* was demonstrated to be assignable to the equal tension of the cord, and where any advantage was obtained, to the mere support of one end, after passing under the sheave or moveable part. More attention was paid to consequences resulting from the interposition of the *inclined plane*, and many instances of its application were given. The common proportions of the power to the weight, when an equilibrium prevails on the plane, were stated; and likewise the useful general ratio, that of the sine of the elevation of the plane to the sine of the angle formed by the direction in which the power acts, and a perpendicular to the base of the plane intersecting it. Respecting the *wedge*, the principal circumstances were brought forward, the opposing opinions as to the relation of its parts noticed, and the paramount influence of impulse, as compared with pressure, particularly insisted upon. The impossibility of calculating the energy of the wedge, without a more perfect knowledge of the influence of percussion on the one hand, and of cohesion, with its varying resistance, on the other, was also fully insisted upon. Lastly, the construction of the *screw* was shown; its prodigious efficacy in consequence of the small distance betwixt two threads, and the great extent of the circumference of the circle described by the impelling lever, —in one instance half an inch to seventy-six inches, or one to one hundred and fifty-two,—and its great utility as a scientific instrument for minute measurement, in the form of the micrometer screw, were fully developed. The importance of the great degree of friction which occurs in its action, as well as in that of the inclined plane and wedge, was briefly mentioned.

After making a few remarks upon the general operation of these expedients, and on their great importance when variously combined to produce different machines, Dr. Birkbeck announced that in his next lecture he would notice the different mechanical processes which are observed in various animals, but especially in the human body.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'Alembert.

Histoire Abrégée des Drogues Simples. Par N. J. B. G. Guibourt. 3me. edit. Deux tomes. Baillière.

We notice the appearance of the third edition of Professor Guibourt's admirable

work, in order to recommend it strongly to all those interested in the progress and advancement of pharmacology. It is, in our opinion, decidedly the best and most practical work on drugs and dry-salteries yet published; and must be a valuable acquisition to druggists, and all those of our professional brethren who feel an interest in the history of the materia medica. The present edition contains a considerable quantity of new matter, as must be evident, when we state that it contains nearly 500 pages more than the second edition.

We take this opportunity of noticing and recommending another work on the same subject, though published four years ago, but which, we think, is not known to many; who, were they acquainted with its value, would not be without it. We allude now to the "*Grundriss der Pharmakognosie des Planzenreiches*," by Dr. T. W. C. Martius, of Erlangen. We only regret that the author has confined himself to the *vegetable* materia medica.

Both the above mentioned works are indispensable to all who wish to keep pace with the present state of pharmacological science.

MEDICAL GAZETTE.

Saturday, April 2, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

JUSTICE FROM THE LEGISLATURE.

LORD EASTNOR, on Tuesday, had the delicate task imposed upon him, of presenting to the House of Commons two petitions from very different parties. One was from a Board of Guardians under the new Poor-Law, praying parliament for a favour—the extension of the period for paying a certain loan: the other, calling on the legislature for justice. On presenting the latter petition, his Lordship described it as emanating from sixty-four medical practitioners, of Surrey, who complained, in strong terms, of the hardship to which they were subjected, under the operation of the new Poor Law: they pointed out those grievances which, however familiar to the profession of late, are still, we fear, but too novel to the ears of men in parliament: the district system was exposed—the contract system—the plan of bringing in strangers and young adventurers, to discharge, or rather to try to discharge, the duties devolved upon them as medical attendants of the poor. But above all, the inhumanity of the measures adopted by the guardians was denounced as disgraceful to the country in which such proceedings are countenanced by the legislature. The prayer of the petition was for a committee of inquiry, which, however, his Lordship said he would not urge.

This straight-forward appeal had the effect of bringing the Under Secretary of State, Mr. Fox Maule, upon his legs; when that gentleman informed the House, that in consequence of a late intimation from the Home Department, the Poor Law Commissioners were even now consulting how the grievances complained of by medical men might be remedied. Sir Charles Burrell, and other members, joined in pressing the propriety of speedily finding out some such remedy; and so the conversation ended.

One thing of much importance we learn from this short conversation—namely, that the deputation from Bucks, of the proceedings of which, in their interview with Lord J. Russell, we published a full report in our last, has not been in vain. The protest then presented, and urged on the attention of the noble Lord, seems to have had its effect—the more so, perhaps, as it came upon him with all the charm of novelty, for he said, upon the occasion, "that he had not previously heard of such complaints from any other quarter."

It is so far satisfactory, that the ears

of the proper authorities are at last opened to the just complaints of the large and respectable body of the profession who labour under the grievances of the poor-law system. Nor is it less so, that the Commissioners are now at length really obliged to take the matter into consideration. Hitherto there has been only insult heaped on insult, whenever access was sought to the functionaries in Somerset House; or if an interview were granted, no specific measure of relief was ever promised; the utmost was some indefinite intimation that the thing would be seriously considered. We now know that consideration was *never* seriously given, by the Poor-law Commissioners, to the applications sent to them by medical parties,—the Board of Guardians had it all their own way. This is plain, from the confession made by the Home Secretary, that he had never heard any complaints of the kind before; and that, in short, he had never been consulted on this most serious subject by the worthy Commissioners.

But we trust that medical men throughout the country will not now relax in their efforts, on the supposition, which we fear may be entertained by too many of them, that nothing more remains to be done, the attention of parliament and of government being awakened to their just claims. We can tell them, that in point of securing a final and satisfactory issue in this matter, almost *nothing* has yet been done. Every thing depends upon the exertions now to be made. Every medical association in England ought to follow the example of that of Bucks; and where there is no association yet formed, one ought to be speedily organized, without regard to the audacious dictum of the Poor-law functionaries, who, of course, consider, nay, even venture to denounce, all such social unions as "combinations," in the most opprobrious sense of the word. On this point, however, we leave them in the hands of the protestors of Bucks, whose valuable document (see last Gazette) ought to be attentively perused by every member of the profession.

From the very commencement of this bitter aggression of the rights of medical practitioners, by the local boards, we have pointed it out as the only efficient method of obtaining redress,—to unite — to form associations — to let the grievances be heard—not only by the profession itself, but by the public at large. That end is in some measure attained by the publicity attached to petitioning parliament. But the matter must not rest here: petitions must abound,—petitions must be poured into both Houses from every quarter of the country,—and then the great object—simple justice—will be effected. We cannot sufficiently praise the strenuous exertions of the Bucks Association, nor adequately congratulate them on their success. Deputations of the same kind, wherever practicable, ought to procure interviews with the leading members of the government; and no pains should be spared to secure the assistance of *really* honourable and respectable members of Parliament — for others will do irreparable mischief. We consider at present that no more than the first blow is struck, and that if there be any lack of ardour or energy on the part of those whose bounden duty it is to persevere, all that good that might seem to accrue from "gaining half the battle" will mount aloft to the limbo of vanities.

PATRONAGE OF THE NEW QUACKERY SOCIETY.

As we anticipated, the quacks are delighted with the Lancet scheme of forming an Anti-medical Quackery Society. They say, in their last manifestoes in the Sunday papers, "that they deem it necessary to support the plan

proposed by Mr. Wakley," and that they "have no objection to the title of the society, as projected by him!" This is exactly what we foresaw. What will be the next scheme of the *honourable* Finsburian?

LITHOTRIPSY.

LETTER FROM BARON HEURTELOUP.

To the Editor of the Medical Gazette.

Sir,

I beg the favour of your inserting the inclosed translation of a letter which I have addressed to Sir Benjamin Brodie, on the subject of his correspondence with Sir Charles Bell *. I think I owe to Sir Benjamin a public acknowledgment; and I flatter myself you will second my wish to render what is due to one of the brightest ornaments of your country.

I have the honour to be, sir,
Your obedient servant,
Baron Heurteloup.

4, Queen Ann St., Cavendish Sq.
March 28, 1836.

To Sir Benjamin C. Brodie, Bart.

Sir Benjamin,

A stranger in this land, where I flatter myself I have done some service, I left to *time* the care of answering all those who were opposed to me, or to lithotripsy. I never ventured to hope a defence from so high a quarter.

Allow me to express to you how deeply alive I am to your obliging proceedings, and to assure you, that amidst all the honourable proofs of interest I have met with in this country, the opinion which you have just expressed stands out as one of the highest that I could aspire to. When a man of such eminence as yourself expresses his opinion on a person or on a thing, his word commands attention.

So considered, Sir Benjamin, your letter is not only the act of a "*galant homme*," but it will also be a worthy preface to the serious discussions which lithotripsy demands from the medical profession; for who will venture to speak with levity, and without competent information, on a surgical process to which you, sir, have given your sanction?

But in this letter, destined only to express my gratitude, it would not befit me to introduce questions of science: I will therefore finish by again assuring you of the sense of obligation with which I have the honour to remain,

Sir Benjamin,
Your most obedient humble servant,
Baron Heurteloup.

4, Queen Ann St., Cavendish Sq.
March 28, 1836.

* See Medical Gazette of last week.

COLLEGE OF PHYSICIANS.

Monday, March 28, 1836.

Sir H. Halford, Bart., in the Chair.

Some important propositions of a liberal kind were brought before the College on Monday, to which we may at another opportunity advert. The new Council has been elected; the members are as follows:—

Sir H. Halford, *Pres.*

Dr. Turner.	Dr. Chambers.
Dr. Hue.	Dr. Watson.
Dr. John Bright.	Dr. Holland.
Dr. Paris.	Dr. Elliotson.
Dr. Macmichael.	Dr. Clendinning.
Dr. Latham.	Dr. Heberden.

The meeting of Monday evening was thinly attended, perhaps owing to the very unfavourable state of the weather. Two papers were read: the first was one communicated by Dr. J. A. Wilson; it was from the pen of Mr. Russell, and related to *Coup de Soleil*, the pathology of which, so far as we understood the author, consists chiefly in a sudden determination or rush of blood to the lungs. The second paper we subjoin.

On the Pathology of Decapitation. By Edward Rigby, M.D., &c.

The remarkable occurrences which have lately led to the execution of three criminals at Paris by the guillotine, and the minute detail of their last movements, which has appeared in the various daily journals, have excited a sufficient interest in the public mind to render an apology needless for introducing such a subject on the present occasion.

The extinction of life by decapitation presents several phenomena of great interest, not only in a pathological, but also in

a physiological and psychological point of view. I have therefore collected a variety of observations which have been made on this subject in France and Germany, especially by Dr. Fred. Nasse, of Bonn.

That the head after its decapitation must die, is easily explained, both on physiological and psychological grounds; but the question how these changes take place has not been sufficiently investigated.

"As loss of blood and cessation of respiratory changes are the main causes why life ceases in the head, it will be as well to examine the extent and duration of their effects."

From the profuse hæmorrhage which instantly follows a decapitation, it has been commonly supposed that the head dies from sudden loss of blood. This, however, is by no means correct, because the chief of the blood which streams so copiously comes from the trunk, where there is a heart to propel it. We also know that a part may lose a large quantity of blood without its vitality being destroyed. That the head when separated from the body is not suddenly drained of its blood is proved by the following facts:—1stly, We observe in the heads of decapitated animals, as I have proved, says Dr. Nasse, in my own experiments, that the blood does not stream out at once. Repeated observations on decapitated criminals prove that the head does not lose its blood at once (as Burdach has asserted), but gradually. The anonymous author of an essay (published in 1804) on this subject, says that the blood flows from the head slowly. Müller and Bährens state the same opinion. Klein, in the case of a criminal who was executed by the sword, and where he carefully observed the various phenomena presented by the head and trunk, says, "the blood drained very slowly from the head." In another case, he says, "during the whole time that the head was observed, the blood continued dropping from it." In one of these cases the blood immediately after decapitation came away guttatim, and did not flow faster until two minutes and a half afterwards. In the other case it trickled at first, but afterwards ran in a stream. Dr. Nasse found a considerable quantity of blood in the head of a rabbit, after it had been severed from the body a quarter of an hour. On examining the cortical and medullary substance of the brain of a criminal some hours after execution by the guillotine, he found that the vessels contained blood. In another instance, where the head was not examined till some time after execution, the vessels were found empty, but in this case a considerable stream of blood had flowed from the head shortly before it was opened.

The circumstance of blood flowing away shews that it must necessarily have remained fluid in the head; and, moreover, as it flows away gradually, it must have been gradually propelled from the arteries to the veins. Julia de Fontenelle distinctly asserts, that the divided cerebral arteries contracted instantly, and as long as this contraction lasted very little blood was lost.

It is impossible to fix with any degree of certainty how much the cerebral circulation may be diminished, without the functions of the brain being injured; still, however, there are facts which seem to shew that it may proceed to a considerable degree. If Bichat could keep up the functions of the brain in dogs, although he had injected water into the carotids, it shews that a very small quantity of blood must have been present for this purpose. The phenomena of cholera confirm the same fact. The heart may even have ceased to beat in animals, and yet evidences of cerebral life remain. This has been observed in the human subject during a horrible execution related by Bartholin, where the heart had been torn from the criminal, and where afterwards "inter alia tormenta quæ sequebantur, caput expeditè movebat, adstantes torvo vultu intuebatur, et cor suum accuratius contemplabatur donec caput amputaretur."

A rapid extinction of cerebral life might follow the introduction of a quantity of air into the cerebral blood-vessels. Magendie, by injecting air into the carotid of an animal, produced convulsions and death, with symptoms of apoplexy. Air was found in the cerebral vessels of two criminals who were guillotined at Bonn; but this was not until the blood had escaped from them, and is therefore no proof as to what takes place at the instant of decapitation. The complete absence of convulsions which is invariably observed at this moment, shews that no air can then have penetrated into the vessels.

Where a concussion of the brain accompanies the separation of the head from the body, this must, of course, injure more or less its vitality. "Concussion of the brain most frequently follows decapitation with the axe, as the head falls from the height of the block upon the hard floor. Where it is performed with the sword, an assistant usually holds the head by the hair whilst the blow is made. With the guillotine the head falls upon sand, or is received into a bag, so that little or no concussion is produced." In an execution with the sword which I once witnessed, the criminal sat in a chair, and the head was allowed to fall from this height upon the scaffold, although some bandages had been put round, and gathered into a knot

at the top of the head, in order that the assistant might hold it up to the crowd more conveniently.

The degree of irritation which the brain suffers from the injury of the spinal marrow, may be in some degree appreciated by what is observed in animals, where every portion of the neck (spinal marrow included) has been divided, except the carotids; and where artificial respiration has been kept up, the affection of the brain is not very remarkable. If the foregoing observations lead to the conclusion, that there is no reason why life should be instantly extinguished in the head by its separation from the body, can we therefore say precisely until what time are there no signs of death in the head to be discovered? This will evidently appear, sooner or later, according to the degree of vital energy which the head possesses at the moment of separation. As a general answer we may say, that the conditions compatible with a continuance of life in the head, exist until we observe symptoms of relaxation in the muscles of the face, and disappearance of vital turgor in the eyes, by which time the quantity of blood lost from the head will be more considerable. In one of the cases which were observed at Bonn, these appearances were observed in two minutes after the separation of the head from the trunk; in the other they were not ascertained so precisely, as the attention of the observer was directed to other points of interest. Klein, in a case which he observed, did not perceive any motions in the muscles of the face until rather more than three minutes had elapsed; whereas in another case, where the criminal was a woman, and in a state of great debility, they appeared almost a minute sooner. Although we may have no proof of distinct loss of vitality in the head after its separation from the body, another question arises, viz., has the vitality which remains the sufficient degree of energy to generate and keep up the mental life of the head? Numerous experiments prove, that the capability of receiving external impressions, and producing motion in a living part, is very different from the capability of feeling these impressions, and producing these movements in subservience to the will.

To examine this subject psychologically, we must ascertain the state of the mind shortly previous to, and at the moment of, the head being separated from the body. When we take an animal for physiological experiments, we seldom consider its condition, psychologically, at the moment of its being seized, and held fast for the purpose of performing the experiment; and yet this cannot be undeserving of attention: even powerful dogs frequently tremble considerably when laid on the operation table. Two instances have occurred to the observation of Dr. Nasse, of rabbits which had been tied down for the purpose of experiment, and from some reason had been again released, being found dead the following morning, although no cause could be detected upon dissection. It must naturally be supposed that (with very few exceptions) criminals, shortly before their execution, must be in a state of severe mental suffering. Brand, the executioner at Berlin, assured the late Dr. Heim, that of ten criminals whom he had executed, he had scarcely met with one in whom, during the last moments, he could discover perfect consciousness and perception; and that, in most instances, before he had laid hands upon them they were nearly dead. Whether this opinion be correct or not, is of little consequence to our present object; it serves at least to show that, under such circumstances, the last moments must be usually passed in the most painful anxiety.

With regard to the sensation of pain at the moment of decapitation, this must be almost inappreciable: the instantaneous infliction of a wound, whether with a sharp or blunt instrument, is seldom accompanied with much sensation; the degree of sensation is in an inverse ratio to the rapidity of the blow: the almost unconsciousness with which even a whole inferior extremity has been carried away by a cannon-ball, is a striking proof of this fact.

It is well known that motions will take place in parts which have been separated from the body, where every other trace of cerebral action has disappeared: these prove nothing,—they take place without connexion with the will through the brain, and spinal marrow, and are of much the same nature with the movements produced by galvanism. "The mere distortion of the face, in decapitated criminals, proves nothing more as regards the duration of mental action in the head, than those frequently quoted, though rarely observed, cases do, as regards the trunk, where, after the fatal stroke, the hands beat the breast, and the body has made a step." Let us examine some of the phenomena which accompany the act of decapitation :—" One would have thought that the face of the decapitated criminal would have had an expression of great pain; at any rate would have been spasmodically distorted,—on the contrary, it is perfectly composed,—to all appearance, the expression is as completely that of indifference, and without a single distortion of the features, as if nothing whatever had occurred to produce any change. The observations which have been made respecting this fact are so important to our subject, that it will be well worth while to

collect them. The first who observed this remarkable circumstance was Wendt (Breslau, 1803): he says, "I fixed my eye steadily on the decapitated head, but could not perceive the slightest contortion of the face—it was calm, the mouth was closed, the eyes were open and bright, not a feature betrayed the fact of the head being separated from the body." This observation has since been repeatedly confirmed by others. The anonymous author of the essay already mentioned says, "on taking off the bandage from the decapitated head, the eyes were open, bright, quite in a natural state; the physiognomy exactly as it was just before the execution."

In the first case which Klein observed, the head was held before him the instant it was taken off. He could not perceive "the slightest alteration in the features, or distortion of the muscles." In the second case, where he did not see the head till a minute after its separation from the body, he says, "one could almost have fancied that the head wished to finish the prayer (the uttering of which had been cut short by the stroke of the sword); not the remotest expression of pain could be perceived; the countenance was remarkably composed."

Where the lips were in motion during the last moments before decapitation, these movements have been observed to continue after the head was separated. In the case of Mary Queen of Scots, these motions are said to have lasted nearly a quarter of an hour, which is certainly a very considerable period. Klein saw the lips closed, and without any motion, in a head which had been struck off during the act of praying; but then it must be recollected that this head had previously fallen upon the floor of the scaffold, had rolled about, although without coming upon the cut surface, had been taken up, and again let fall. In another case, however, where the head had been also struck off in the act of prayer, the lips were nevertheless closed, and without motion.

Another phenomenon in the muscles of the head after decapitation, is the movements of the eyelids, pupils, mouth, and tongue, which take place quite equably, and without any jerk. Klein has described these appearances minutely, although they had been previously noticed by several authors. They occurred also in the cases which Dr. Nasse observed. These movements come on subsequent to the above-mentioned expression of composure; they appear at first merely to diminish it, and afterwards to remove it.

Cases have been recorded of heads, after decapitation, which had been intentionally or accidentally exposed to any stimulus sufficient to excite the organs of sense, when in a natural state, having manifested such movements of the features as would have resulted from the action of such a stimulus under the usual circumstances. Wendt relates, that having put his mouth to the criminal's ear, and called him by name, the eyes turned to the side from which the voice came. Others have observed the same. According to Julia de Fontenelle, Mojon, Guillotin, Nauche, and Aldini, have all noticed this fact; and he gives a case from his own observation.

As the word "murder" was called into the ear of a criminal who was executed for this crime at Coblence, the half-closed eyes opened wide, and he stared with an expression of astonishment at those who stood before him. Wendt moreover relates, that when the open eyes of the decapitated head were turned towards the sun, they closed. According to Julia de Fontenelle, the same fact was observed in the cases seen by Mojon and his colleagues. According to him, they also observed that when the protruded tongue was pricked with a needle, it was withdrawn, with an expression of pain in the features.

On the other hand, there are many observations to prove that similar experiments have produced no such effects. The ear has been called into without the slightest change of countenance. When a naked lancet was thrust towards the eye, there was no perceptible change, although this was repeated four or five times. Allowing the sun's rays to fall directly into the eyes, produced also no effect. In a case which Senff observed, the eyes did not wink, but remained wide open when the fingers were moved several times before and at them. Klein also remarked, in a decapitated head, that no motion of the eyes was produced by turning the face towards the sun, but that they remained open as before. Eckoldt observed that neither blows, cuts, nor pricking, produced any change in the features of a decapitated head. In a case which Senff observed, where a needle was thrust into the cheek, the expression remained unaltered.

Spontaneous movements have been observed in decapitated heads, which distorted the features, giving them an expression of intense pain; but this has never come on till after the above-mentioned appearance of composure in the expression.

The anecdote of Charlotte Corday's face having blushed after decapitation, when the executioner struck it a blow on the cheek, cannot be quoted, as Cabanis, from the assurance of several witnesses, particularly of a friend who never took his eyes off her, considers the whole story to be a mere fabrication.

Let us now see how the above facts hold good in our present inquiry. The expression of perfect composure in the features

of a head just decapitated, is a circumstance which has been so repeatedly confirmed by observers, that it may be considered as an established fact, although we should naturally expect a contrary result from the mental suffering in which the criminal must be just before decapitation, and the pain he must feel at the instant in cases in which he is still conscious.

This was remarkably the case in a decapitation with the sword at which I was present. The first blow failed, having been struck deep into the shoulders; not a muscle of the face or the body stirred, although it required a considerable effort to disengage the blade. A second blow, better aimed, severed the head from the shoulders. The features, when the head was held up, were perfectly composed; the expression of wretchedness which had been so strongly marked on the criminal's face but a few seconds before had quite disappeared,—the blood merely dropped from the head.

The cases where the face, before execution, had betrayed a marked expression of suffering, which ceased instantly afterwards, are well worthy of notice. This quiescent state of the features cannot result from paralysis, because there would be complete relaxation of them. Convulsive action would be marked by distortion, of which there is not a trace. The question is, what is the condition produced by decapitation which is accompanied with this insensibility to pain?

The fact that the lips of Mary Queen of Scots moved for a considerable time, is no proof of mental life continuing after decapitation. The slight movements of the features which come on spontaneously after decapitation, so completely unite the appearance of spasm with that of mental expression, that it has given rise to very different opinions.

Klein says, that he could not consider the motions of the mouth, tongue, and eyes, as any thing more than spasmodic action, although more superficial observers might have taken them for evidences of mental life. "The mouth," says he, opened somewhat, then closed, and opened again, during which the tongue protruded a little, although not beyond the lower lip. The eyes turned gently outwards, then inwards, so that if I had been inclined to take one view of the question, I could have almost said, the head is looking at the bystanders, and would say something." We must look upon the mental character of these movements as very doubtful;—firstly, because a period of from one and a half to two minutes elapses after decapitation, before they take place; and secondly, because they are accompanied with a protruding of the tongue, which decidedly looks more like convulsion than voluntary motion.

The distortions which frequently, if not always, take place in the features, shortly after the separation of the head from the trunk, in all probability are convulsions. They come on after the period of composure in the features, and in three cases were observed after the slight movements of the eyes, mouth, and tongue, as above described, and may also be produced by irritation applied to the remaining portion of the spinal marrow.

It is a remarkable fact with respect to the convulsion which appears in the head after decapitation, that nothing of the sort is seen in the body. This is an observation which the executioner Brand made to Dr. Heim, of Berlin, and which has also been confirmed by Klein. This was also remarked in the bodies of the two criminals which were guillotined at Cologne and Coblence. We may explain this fact, when we recollect that the head is decidedly the part most exposed to excitement just before the execution; that the blood is not expelled so rapidly from the head as from the body; and that in the human subject the head may be safely asserted to possess more vitality than the body.

In comparing the various results together, Dr. Nasse comes to the following conclusions. First, that the conditions necessary to a continuance of vitality in the decapitated head do not instantly cease. Secondly, it has been observed that there is an expression of composure which does not indicate paralysis, as also movements which, from their correspondence with each other, make it probable that there must remain, for a certain period, a degree of conscious mental activity in the head.

It will now be necessary to examine the different effects produced on the head, *psychologically* speaking, according to that part of the neck at which the separation has taken place. In the criminal who was guillotined at Coblence, in whom evidences of hearing appeared to exist, the neck had been severed deep between the 6th and 7th cervical vertebræ; whereas, in the case at Cologne, where this appearance was not observed, the instrument had gone through the 5th vertebra. The result of other cases does not confirm this fact, symptoms of hearing having been manifested where the separation had taken place at the 4th vertebra. Klein, moreover, observed the composed expression of the features, in cases where the separation had taken place between the 3d and 4th, and even between the 2d and 3d vertebræ.

From the foregoing researches, we find that the phenomena presented by the head immediately after its separation from the body, occur also in a state which comes on under similar circumstances to those of decapitation.

It has been observed, in people who have been exposed to overpowering emotions of the mind, especially fear, that a remarkable change in the relation between the mind and body is produced. The mind is no longer sensible of injuries done to the body: however violent they may be, the mind remains perfectly unaffected. Although they are thus, as it were, separated, yet impressions of the higher senses appear to reach the mind. It produces movements which have all the appearance of being voluntary—a state materially differing from that of insensibility.

The late Dr. Heim, of Berlin, the acuteness of whose observations is well known, collected several instances of this affection. If we compare this state with that of the head after decapitation, we shall perceive a remarkable similarity. The cases which Heim has published give sufficient evidence that this trance-like condition may occur in persons who were in a state of perfect health. Violent emotion of the mind precedes the one as well as the other condition. The observations of the executioner Brand shew that, with very few exceptions, criminals are in a state of the greatest fear just before execution. If we could suppose that a person, with all the preparations for a violent death before him, could be devoid of fear, the pain of the execution being now so much greater, would be sufficient to induce this state, which the mental suffering, before the stroke, had failed of doing.

To all appearance, the sensation of pain ceases completely in this state which we are comparing with that of decapitation. A patient who has been in this condition has no recollection of having suffered pain. It would seem, in this state, that the will still continues its control over the voluntary muscles, from the circumstance that, in spite of the great bodily suffering to which the body was exposed in Dr. Heim's cases, no convulsions were observed.

The chief difference between these two conditions is, that in the one the normal state can return; in the other, of course, it cannot. How long a condition of this sort can last in the head, after its separation from the body, can only be determined approximately. Klein, as before mentioned, observed the quiescent state of the features, in three instances, to last from one and a half to two minutes. Future opportunities must determine these interesting facts, where the observer shall be so situated as to entirely concentrate his attention, without the slightest interruption, upon the phenomena exhibited by the head.

LECTURES

ON THE

DISEASES OF THE NERVOUS SYSTEM.

By M. Andral.

As published in the *Gazette des Hôpitaux*, with the approval of the learned Professor.

HYPERTROPHY AND ATROPHY.

Hypertrophy of the Brain, Cerebellum, Spinal Cord — Atrophy of the Brain: General, Partial—Atrophy of the Cerebellum—Atrophy of the Spinal Cord.

The diseases comprehended in the second class of cerebral affections may be divided into four orders—viz. hypertrophy, atrophy, induration, and softening.

I. *Hypertrophy of the nervous centres.*—This requires to be carefully distinguished from hyperemia. The two affections may take place together or separately, presenting different symptoms accordingly. The disease does not attack all ages indifferently, as we shall see in the sequel.

The principal anatomical character of hypertrophy is the remarkable density of the nervous substance. The colouring part of the blood seems present in diminished quantity, being just the reverse of what we find in hyperemia. If the cerebral mass be sliced, it is found to be dry; and this dryness exists both internally and externally. The convolutions are closer, and the infractuosities less apparent. The ventricles seem disposed to become obliterated. Thus hypertrophy may be traced in the principal parts of the nervous centres—1, in the brain proper; 2, in the cerebellum; 3, in the spinal cord.

In the brain both hemispheres may be affected by the hypertrophy, either throughout or partially. When it is general, either the parietes of the cranium become developed simultaneously with the brain, and then no particular mischief occurs; or the cerebral mass being alone attacked, the bones retain their ordinary dimensions. Under this latter condition numerous symptoms supervene, dependent upon compression, and upon the congestions to which this secondarily gives rise.

Among the causes of this hyperemia has been enumerated too early exercise of the

intellect; but this requires proof. Age seems to have some influence, inasmuch as the disease is usually met with between the ages of 20 and 35: beyond this it is rare. The symptoms may be altogether wanting when the skull becomes proportionally developed; but where it is otherwise, disturbances manifest themselves in the intellect, in motion, and in sensation. The intellect becomes dull; there is a kind of idiocy, which progressively increases with the hypertrophy. In some there is merely perversion of intellect. This lasts for a longer or shorter time, when delirium usually occurs: the disturbance quickly becomes general, and the patients die. Sometimes profound coma attends this stage. Headache is usually one of the predominant symptoms; and in certain cases there is also delirium.

The lesions of movement consist in convulsions, particularly in infants; and in some patients they assume every appearance of epilepsy. In the autopsies of some epileptic subjects, I have traced the complaint to well-marked hypertrophy of the brain. Occasionally paralysis takes place, and this may succeed to the most violent convulsions. Loss of sensation sometimes, either gradual or sudden, has been observed; and it is so far remarkable, that, in a chronic affection such as this, the loss of sensation is sometimes so sudden, as to become complete within a single day. Although the functions of organic life are not in such cases the most apt to be affected, yet digestion and circulation are occasionally implicated in hyperemia.

The disease may present two distinct periods—one acute, the other chronic. In the first we observe violent convulsions; and in addition to the symptoms above alluded to, we may have those of acute hydrocephalus. In the second we witness nearly the same phenomena—convulsions, occasional delirium, the symptoms of chronic hydrocephalus, and epilepsy. At this period the patients sometimes die, amid the mischiefs produced by the acute form of hypertrophy. As to the duration and termination of the disease, although the intensity and extent of the affection will necessarily render them variable as to time, yet the ultimately fatal result is but too certain.

As to treatment, nothing can be done in reference to the hypertrophy itself; every thing consists in treating the symptoms.

II. *In the cerebellum* we have the same characters as those already stated with regard to the brain. The disease may be latent, or manifest itself externally by the development of the corresponding part of the cranium. Has this development any connexion with increased action of the generative system? M. Voisin, in examining the heads of many criminals, states that he has, by the existence of the above development, been able to tell those who had been guilty of rape.

The cerebellum may even overcome the resistance which its bony covering presents, and form a true hernia. M. Lallemand relates a case of this nature.

III. *In the spinal cord* there may be hypertrophy throughout its whole extent (of which two cases only have been recorded), or in some particular portion. There is a case of a child who had the brain but little developed, but who, as a kind of compensation, had the spinal cord very much increased in size. Laennec has related a similar case, but without stating what the symptoms were.

We may readily understand how, in cases where there is hypertrophy of the nervous centres, a degree of congestion, otherwise unimportant, may prove fatal.

Atrophy of the nervous centres.—Two kinds of this may be distinguished: the one congenital, resulting from original defect of the organs, and called *agenesie;* the other acquired, and consisting in smaller volume of the parts, whether preceded by an antecedent natural condition, to which a diminution succeeds, or consisting in the growth of the parts being arrested at a certain point. It is scarcely necessary to observe, that in either variety the atrophy presents itself in very different degrees.

As to the anatomical characters, the nervous substance is pale, while its density is sometimes augmented and sometimes diminished. Round the seat of the disease there are certain changes, which implicate either the membranes or the bones. When the membranes are affected there is usually an increased quantity of serum, which is destined to fill the void which would otherwise occur from the entire or partial absence of substance at the seat of the atrophy. According to M. Magendie, the effused fluid is contained within the arachnoid membrane; at other times it is within true cysts, formed either exterior to or within the cerebral substance. In some cases the bones become moulded to the shape of the brain, and there is then less serosity. The bones, however, may be entire, and yet the brain be too small to fill the cavity, and then we find thickening of the membranes, exostoses, &c. It is also sometimes found that the cranium has become thickened at the expense of the inner table; and this, of course, is only discovered after death, when the head is opened.

It occasionally happens, that although the brain be but little developed, or even be wanting, the size of the head is greater than is natural. Under these circumstances the bones have become thickened at the expense of the external

table, or else they are attenuated and rendered almost membranous; they are distended by a mass of serous fluid, which fills them completely, and constitutes hydrocephalus. In the same manner are to be explained the herniæ of the meninges through the parietes of the cranium, even when there is atrophy of the brain, or of some portion of it: these herniæ have also received the name of hydrocephalus.

The causes are by no means always the same, or perfectly known; some, indeed, affect the fœtus in utero. The brain may be arrested in its growth, at any given point, by deficiency of nutritive power, and then an abundant secretion fills the space which it ought otherwise to have occupied. The meninges may, in consequence of an affection of which they are the seat, attract the nutritive process to themselves, or they may throw out too large a quantity of serum, and thus compress the brain, so as to produce atrophy. In such a case the cerebral mass may be altered rather in its form than its nature, and may present a perfect brain in miniature. Tumors formed within the cranium, cysts, such as those resulting from apoplexy, and all the causes of compression of the brain in general, may be enumerated among those of atrophy: other causes, again, operate by producing inflammation or irritation.

The atrophy is not equally frequent in all the parts which compose the nervous centres; and it also varies much in degree.

Atrophy of the brain.—Both hemispheres may be wanting, in which case extra-uterine life is impossible; or there may exist only some feeble traces of brain, the rest being made up of a spongy cellular and vascular mass. One hemisphere may be wanting: this has been met with several times, and the extra-uterine life is then very short. Any of the lobes may be wanting, particularly the anterior, in which case the intellect has been sometimes ordinary, and sometimes weakened. Once, hemiplegia of the opposite side was observed; in another instance there was a remarkable difficulty of speaking.

Both anterior lobes may be deficient, and with this there is usually, though not invariably, flattening of the forehead, for the space may be occupied by fluid. The state of the intellect, under such circumstances, has been scarcely observed, as the infants generally die very early: but in one case, where a girl lived to be fifteen years of age, she was an idiot. The power of motion has sometimes been abolished, and sometimes only weakened. Sensation has also been variously altered: in one instance vision was annihilated, a fact difficult to explain, except on the general principle of the close connexion of the parts of the brain with each other. The sense of smelling has more than once been wanting. Both middle lobes have been absent, and where this happens the phenomena are similar to those above related. So also the posterior lobe, as well as the middle, has been discovered to be wanting. This occurred on the right side; the intellect did not appear to have suffered, but there was hemiplegia of the opposite side.

The posterior cornua of the lateral ventricles have, in two instances, been known to be wanting, without any defect in the rest of the brain; it was attended with idiocy, but without any morbid affection either of sensation or motion.

General atrophy.—An example of this was presented by an individual who shewed nothing remarkable in the way of symptoms, except that he had epilepsy; and the case is curious when contrasted with that in which epilepsy was coincident with hypertrophy of the same organs.

Partial atrophy.—This may be limited to one side, where we find some of the convolutions hard, withered, wasted; at other times it is the deeper parts which become atrophied. The white parts may be the seat of this affection, without always exhibiting appreciable signs of disease. It may well be supposed that in these cases we shall sometimes meet with appearances just opposed to those of hypertrophy, such as thinness of the cranium. Paralysis of the opposite side, as well as obtuseness of intellect, are sometimes met with.

The corpora striata and the corpus callosum are susceptible of atrophy, but there is no instance of it in the fornix. The pineal gland has been sometimes found extremely small, without there being any corresponding symptoms; in some cases, however, its atrophy has been said to be coincident with idiotcy. A case of atrophy of the tuber annulare has been met with, and it has been observed that there was the same affection of the left anterior pyramid, and that all the other parts of the encephalon were in their natural state. The alteration of these parts had given rise to hemiplegia and entire dumbness, notwithstanding that the tongue retained its mobility unimpaired; the intellect had not suffered. These facts are given on the authority of M. Cruveilhier.

The brain, as is well known, diminishes in size in proportion as age advances; and it is worthy of remark, that in these cases the pia mater becomes filled with serosity. The cerebellum, a singular circumstance, is not subjected to the same law. According to M. Desmoulins, the weight of the brain at 70 years is less by one-twentieth than at adult age.

Atrophy of the cerebellum.—This may be a true *agenesie*, which has only been observed once, without there being at the same

time deficiency of other parts: on the other hand, this disease may be merely the effect of imperfect development. In one case simultaneous absence of the pons varolii was witnessed, the space usually filled by the cerebellum being occupied by serosity. A girl, aged 11, who died at La Charité, was the subject of this affection, from which she had at first suffered nothing. Bluntness of intellect, taciturnity, sombreness, and an increasing weakness of the lower extremities, supervened; she was then confined to bed, epileptic convulsions came on at intervals, after one of which she died. Sensation and the special senses presented nothing remarkable. The digestion was good, but the disposition of the child fretful. The genital organs were fully formed; and what is worthy of remark, there was a disposition to masturbation.

The cerebellum may be diminished in size throughout, as I have seen in one case; and this condition may be appreciated by the external surface of the bones. In this case the genital organs were but inconsiderably developed. One lobe of the cerebellum may be in a state of atrophy, with a corresponding state of the testicle of the opposite side. Gall has given examples of this, without stating what was the condition of the intellect. Atrophy of the cerebellum may result from the pressure exerted upon it by certain tumors, producing disturbances analogous to those above described. According to Gall, castration is not without its influence on the size of the cerebellum.

Of three cases of atrophy of the cerebellum, with the same lesion of the lateral half of the brain, epilepsy was observed in one; but ought not this phenomenon to be rather referred to the alteration of the brain? With a smaller development of the cerebellum, or of one of its lobes, an hypertrophy of the spinal cord has been seen. An exalted state of the sensibility of the skin was in this case general, but particularly at the soles of the feet, which could not be touched without exciting acute pain.

Atrophy of the spinal cord.—This, like atrophy of the brain or cerebellum, may be complete, and then there can be no extra-uterine life. In such case different states of the spinal cord have been remarked, such as the absence more or less complete of its bony parietes, or their excessive increase, or, lastly, they may be in their natural state. The spinal cord itself is susceptible of many degrees in the imperfection of its growth. Thus it has been found intersected with one, or even with two, canals in its interior. The grey substance may be wanting, or may exist alone, the nerves remaining entire. Again, atrophy of the spinal cord may consist in a simple diminution of bulk, either general or partial. When general, it is easily detected on post-mortem examination; but when partial, it may escape observation. The bulb of the cord may be alone affected; and M. Cruveilhier says that in a case of this kind the bulb was converted into grey matter, and indurated, there being no other change. The symptoms were great difficulty of speech, progressively increasing difficulty of respiration and deglutition, with death by asphyxia. The intellect was undisturbed. In general, atrophy of the spinal cord gives rise to paralysis, the intensity of which goes on increasing.

Treatment.—The hopelessness of this is unhappily too notorious. The nervous centres, whatever may be the perfection of their development, are subject to other diseases besides those of which I have hitherto spoken; such are softening, and induration.

ROYAL INSTITUTION.

Friday, March 25, 1836.

Insect Anatomy, and the Oxy-hydrogen Microscope.

Mr. Goadby this evening gave a very interesting account of the anatomy of insects, illustrated by dissections made by himself, and shown by an improved portable oxy-hydrogen microscope, on a disk ten feet in diameter.

The improvements which Mr. Goadby has introduced into this instrument are twofold. In the first place, a parabolic mirror, made of speculum metal, and 3½ inches in diameter, is substituted for the condensing glasses; so that the only glasses employed are object glasses, and these are doublets, namely, two plano-convex lenses. The other improvement consists in the substitution of bags for metallic gasometers, the bags being made of sheet Indian rubber, protected externally by a surface of cloth.

The objects shown were numerous. The first was the skeleton of the *Blatta americanus*. The skulls of several insects were also shown. The perfect bug (*Cimex lectularius*) was also shown, and its mode of feeding described. This disgusting parasite is said to have reached England in the wood required to rebuild London after the great fire. It would appear that he instantly possessed himself of the freedom of the city, and notwithstanding the efforts of individuals who have dared to dispute his rights, he has pertinaciously

remained a citizen to this hour. But there are some curious particulars connected with his mode of feeding. He possesses a jointed rostrum, in which are contained four fine lancets or bristles, and having inserted the point of the beak (or rostrum) into the skin, he makes four deep punctures with the lancets, which are then retracted into the head, leaving the beak as a tube through which the blood of his victim may flow in a continuous stream until his hunger be satisfied. To prove that the rostrum itself is inserted, you have only to let a bug feed on the back of your hand when the skin is loose, and while he is feeding clench your fist so as to tighten the skin, when the animal will in vain attempt to disengage himself; neither can he do so until you once more open your hand. Now if you watch the feeding with a lens, you will perceive the blood flowing up the tube into the œsophagus in a constant steady stream. Not so with the gnat; for although he too carries a tube containing lancets, the mode of feeding is essentially different; his lancets are not *retracted*, but may be seen working up and down the tube like a piston in the barrel of a pump, obeying the impulse of that extraordinary organ of his, the sucking stomach, which is dilatable at the pleasure of the insect, in such a manner as to draw the food into the œsophagus.

The eye of the beetle, *Prionus longimanus*, was beautifully exhibited, shewing the almost innumerable facets, of which Lewenhoeck counted 55,088 in the two eyes of the dragon fly. The flexor and extensor muscles of the common cricket (*Acheta domestica*) were well shewn; and the enormous power which the extensors have over the flexors; so that the insect may be easily propelled to a considerable distance.

The structure of the feet of insects was admirably exhibited; for example, the tarsus of the *Locusta viridissima*, with its eight fibro-elastic cushions, analogous to those of the feline tribe; the foot of the *Asylus crabriformis*, with two suckers, which enable the fly to walk up smooth surfaces, and against gravity; foot of *Tabanus bovinus*, with three such suckers; foot of *Dyticus marginalis*, with innumerable suckers, mounted on short tubes.

The wings of insects of the Linnæan orders formed striking objects. There were exhibited the wing-case and wing of the Coleoptera; ditto, Hemiptera; ditto, Lepidoptera; wings of Neuroptera; wings of Hymenoptera. There is in the structure of the wings of this latter order a remarkable peculiarity, and one which the lecturer said he had never observed noticed in print, which is, that the inferior edge of the *superior* wing possesses, in one part of its course, a broad, deep fold; and that the upper edge of the *inferior* wing is provided with a number of hooks, varying from 20 to 35 in number, which attach themselves to the fold of the upper wing; so that in the action of flight, the two wings strike the air only as one broad wing. From the result of his observations, Mr. Goadby is induced to regard this structure as an additional character of the hymenopterous insect, never having known it to fail. There was also exhibited the wing of *Volucella pellucens*, a dipterous wing, exhibiting the so-called *winglet*. With regard to this latter peculiar appendage of the Diptera, it has been said by some authors, that nature had attempted to confer four wings on insects of this class, but did not succeed, and so left the rudiments of a pair, which have hence been called *winglets!* "When I dissected off," said the lecturer, "the beautiful wing which now appears before you, I thought I could detect some connexion existing between this *winglet*, and the vesicular air-bag which occupies from about the second ring of the abdomen to the base of the wing; and when I found that the wing-bones of insects, like the wing-bones of birds, are so many hollow tubes, through which large air-tubes are distributed, containing a quantity of condensed air, thus rendering *them* also specifically lighter than the atmosphere, I came to the conclusion that these *winglets* had something to do with this process—that they were, in fact, auxiliaries, and on examining the winglets themselves, I find them to be merely capacious sacs. I do not assert that their use is just what I have described, but I do throw it out as a hint for the careful investigation of others: that the wing-bones are not only *hollow*, but *permeable*, I can give proof, as I have injected them with oil of turpentine, and the effect is very complete."

Among other objects exhibited with great success, were the sting with the poison-bag, secreting glands, and excretory duct, of the honey bee; and the alimentary canal, with salivary glands and hepatic vessels, of *Locusta viridissima*; alimentary canal with the enormous salivary apparatus of the caterpillar (*Cossus ligniperda*); stomach of *Blatta* (cock-roach) shewing the six teeth at the pyloric extremity; stomach of the larva of the dragon-fly, shewing the four teeth at the pyloric extremity; proventriculus of cricket, shewing the six horny bands, to which the teeth are attached.

Mr. Goadby next called attention to a most magnificent object—the respiratory system of the caterpillar of *Cossus ligniperda*, or the goat-moth, as dissected by himself. We decidedly think that this

admirable piece of dissection stamps Mr. Goadby as perhaps the ablest practical insect anatomist of the day.

Our space is nearly filled—yet we must endeavour to find room for the following remarks of the lecturer.

There are three modes by which insects breathe,—by spiracles, by air-tubes, and by branchiæ. The terrestial insects, throughout their phases, breathe by spiracles or stigmata; a number of oval mouths, very conspicuous on the rings of caterpillars, and which open at once into the trachæ.

Of the aquatic insects, some breathe by air-tubes (larvæ of gnats, for instance), which are placed at the caudal extremity, and are connected with the tracheæ; others, such as larvæ of ephemera, by gills placed at their sides.

The muscles of the abdomen are also respiratory muscles, for when the abdomen is contracted, the air contained in the air-tubes is expelled, and on the expansion of the abdomen the atmospheric air rushes in.

The air-tubes consist of three coats; a mucous coat, around which is twined an elastic spiral cord, which forms the second coat, and is necessary to keep the tube always open, and to this circumstance they owe the name of tracheæ, from their resemblance in use and structure to the cartilaginous rings of the trachea of man; the third and last coat consists of a membrane, transparent, smo th, hard, and generally colourless, which loosely invests the tube, and is readily detached from it.

The respiratory organs of insects are by far the most extensive structures: there is not a muscle, a nerve, a single lens of their very compound eye, but is furnished with an air-tube, and they are distributed in amazing quantities to the alimentary canal. It would appear thus how important to them is free respiration, and nature has bestowed great pains to secure it to them: the external spiracles of the perfect insect are so carefully concealed as to elude ordinary observation, while those of caterpillars, conspicuous as they are, have the protection of hair to prevent the entrance of extraneous substances—particles of dust, &c.—while within we see the most extensive anastomosis prevail, connecting by the most direct course the spiracles with the tracheæ, and the tracheæ themselves connected at each extremity, so as to form but one immense circulating pipe; and hence the difficulty of destroying life, for if you succeed in stopping up every spiracle *but one*, that will be sufficient to carry on the respiratory process; somewhat tardily, it is true, but quite sufficiently for the purpose of sustaining life.

BATH PETITION TO PARLIAMENT

FOR

REMUNERATION TO MEDICAL WITNESSES

ATTENDING CORONERS' INQUESTS.

To the Editor of the Medical Gazette.

Sir,

Inclosed is a copy of a Petition to the House of Commons, from this city, in favour of the Bill for remunerating medical witnesses for their attendance at coroners' inquests, sent to Mr. Warburton last evening, to be by him presented to the House*. It was signed by eleven physicians, and fifty-five general practitioners. If you would give it place in your widely circulated Gazette, you will oblige your readers in this city.—I am, sir,

Your obedient servant,

George King.

3, New King Street, Bath,
March 25, 1836.

To the Honourable the Commons of the United Kingdom of Great Britain and Ireland, in Parliament assembled.

The humble Petition of the undersigned Members of the Medical Profession, residing in the City of Bath and its Vicinity:

Sheweth,

That your Petitioners, in common with the entire Medical Faculty, besides the ordinary and inevitable demands on their time, are more subject to extraordinary inroads on their professional and other engagements than any other branch of the community: they are, moreover, from the very nature of their profession, further liable to the frequent and great inconvenience of a summons for their attendance at the inquest of a Coroner, in cases of sudden or accidental death.

That on these occasions, besides the immediate and serious inconvenience alluded to, much of their valuable time is frequently occupied either in giving professional evidence of facts, in elucidating circumstances, or in the performance of difficult and hazardous post-mortem examinations; and this accompanied, sometimes, by a troublesome chemical analysis.

That, as the ability to perform these duties is not acquired without a considerable sacrifice of time, money, and the most intense application of mind, your Petitioners respectfully submit, that qualifications so attained are as much the private property of the possessor as any other species of acquirement, and are equally

* It was presented on Tuesday evening, the 29th.

entitled to the protection of the laws; your Petitioners are, however, not only unremunerated on these occasions for the arbitrary appropriation of their time and professional skill, but are without any legal claim whatever on the Coroner, or other authority, for compensation.

Your Petitioners therefore humbly pray your Honourable House, that the Bill now in progress for remunerating Medical Men for their attendance at Coroners' Inquests may receive the sanction of your Honourable House.

And your Petitioners will ever pray, &c.

REMUNERATION OF SURGEONS IN THE MERCHANT SERVICE.

To the Editor of the Medical Gazette.

Sir,

Glancing over the papers to-day, I observe an advertisement from a ship for New South Wales, which recals to my mind circumstances, the detail of which may interest, and amuse, those of your readers who may be intended for the merchant service. Feeling inclined to see other parts of the world, about two years and a half ago I applied to the captain of this same ship to be appointed his surgeon: he expressed himself fully satisfied with my testimonials, and anxious to have the benefit of my knowledge. He informed me that the voyage would last about twelve or fifteen months, and proposed as an adequate remuneration *twelve pounds*—fourteen being his ultimatum! The voyage has continued until two years and a half have expired, and it is very evident that the fourteen pounds would have been the largest amount I should have received. The profits, it must be confessed, would have been enormous. Surely such an occurrence as this,—such an insulting proposal,—ought never again to be made: it is one of those subjects which require the interference of parliament, to the full as much as attendance at inquests.

I have the honour to be, sir,
Your obedient servant,
F. F. F.

March 29, 1836.

AMENORRHŒA.

Dr. Schlönlein, late Professor of Medicine at Würzburg, is of opinion that an injection of aloes (ten grains in a small quantity of warm water), thrown up the rectum at the time the menses ought to make their appearance, is more certain in its effects than any other emmenagogue.—*American Journal.*

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *Mar.* 29, 1836.

Abscess	1	Hooping Cough	4
Age and Debility	54	Inflammation	17
Apoplexy	5	Lungs and Pleura	3
Asthma	18	Insanity	2
Cancer	2	Liver, diseased	1
Childbirth	3	Measles	3
Consumption	53	Mortification	4
Convulsions	24	Paralysis	3
Croup	1	Small-pox	6
Dentition or Teething	6	Spasms	1
Dropsy	11	Stricture	2
Dropsy on the Brain	9	Thrush	1
Fever	2	Tumor	3
Fever, Scarlet	6	Unknown Causes	15
Gout	1		
Hæmorrhage	1	Casualties	9
Heart, diseased	3		

Decrease of Burials, as compared with the preceding week . . 1

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

March, 1836.	Thermometer.		Barometer.	
Thursday . 24	from 32	to 49	29·57	Stat.
Friday . . 25	35	47	29·02 to	29·13
Saturday . 26	31	46	29·17	29·41
Sunday . . 27	23	49	29·48	29·37
Monday . . 28	31	47	28·85	29·17
Tuesday . . 29	33	45	29·45	29·69
Wednesday 30	40	52	29·67	29·47

Prevailing winds, S. by W. & W.

Except the 24th, and afternoon of the 25th, generally cloudy, with frequent and heavy showers of rain.

Rain fallen, ·775 of an inch.

Charles Henry Adams.

NEW PAMPHLET.

Quackery: its danger, irrationality, and injustice: the causes of its success; the best means for its suppression. Addressed to all classes (by Dr. Cowan, of Bath).—pp. 18.

NOTICES.

We have to apologize to several correspondents, for whose papers, this week, we could not find room.

Dr. Lendrick's letter in our next.

We doubt if we can give insertion to Mr. Weiss's communication,—it savours so strongly of the advertisement.

Erratum.—In the account of the "Interview of a Deputation of the Bucks Medical Association with Lord John Russell," in last number, page 1036, first col., first line, *for* "partially," *read* "patiently."

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, APRIL 9, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XXVIII.

METALS AND THEIR SALTS.

The last series of substances belonging to the inorganized kingdom, which I have to examine, is that containing the *Metals;* which bodies may be very conveniently arranged for our purpose in three classes, as follows:—

Class 1*st*, containing the *electro-positive metals*, the oxides of which form alkalies, or earths. *Potassium, sodium, barium, calcium, magnesium,* and *aluminum*, are the only metals of this division which enter into the composition of the mineral materia medica.

Class 2*d* includes the *electro-negative metals*, or those which form, by preference, acids when combined with oxygen. The substances of this class which I shall notice, are *arsenicum* and *antimony*.

Class 3*d* contains those *electro-positive metals* whose oxides are neither alkalies nor earths, but which perform the functions of electro-positive elements in saline combinations. *Silver, mercury, copper, bismuth, tin, lead, zinc,* and *iron*, will be here spoken of.

I propose to notice these different substances in the order here laid down; and, therefore, I begin with potassium.

POTASSIUM.

General remarks.—This metal was discovered by Davy, in 1807, and received its name in consequence of being the base of potassa. It is obtained either by galvanising moistened hydrate of potash, or by exposing potash to an intense heat along with iron filings or charcoal. It is a silvery white metal, distinguished from all other metallic substances by its great lightness, (its specific gravity being only 0·865 at 60° F.),—by its taking fire when thrown on water, and burning with a red-coloured flame, and forming potash,—and by the green colour of its vapour. The symbol for it is K, the initial of *kalium*, one of the synonymes of potassium.

Native state.—This metal is found in both kingdoms of nature. Thus *sulphate, nitrate*, and *silicate* of potash, and *chloride*, (perhaps, also, the *iodide* and *bromide*) of potassium, are met with in the inorganic kingdom: while *carbonate, phosphate, sulphate,* and *nitrate of potash*, and *chloride of potassium*, with many other salts of potash, are found in the organized kingdom.

Characteristic tests.—The potash salts are recognised by the following characters: the hydrosulphurets, ferrocyanurets, and carbonates, produce no precipitates with them. Tartaric, perchloric, and carbazotic acids, occasion precipitates of the bitartrate, perchlorate, and carbazotate of potash. Chloride of platinum produces a yellow precipitate, composed of the chloride of platinum and chloride of potassium, which is, therefore, called the chloroplatinate of potash. Lastly, the potash salts communicate a violet tinge to flame.

Pharmacological preparations.—The following compounds of potassium are employed in medicine, and, therefore, will require to be spoken of:—

1. The *protoxide of potassium* or *potash*, its *hydrate*, and saline combinations, called the *oxy-salts of potash*.

2. *Iodide of potassium.*
3. *Sulphuret of potassium.*

Hydrate and Solution of Caustic Potash.

History.—Solutions of the caustic alkalies, were, doubtless, procured by the Greeks and Romans. Paulus Ægineta, and Geber, have both directed how they are to be prepared. Black, however, in the year 1756, first distinguished, chemically, the caustic alkalies from their carbonates.

Synonymes.—Potash has been known by various names; such as *kali* and *vegetable alkali.*

Preparation.—To prepare caustic potash, add some fresh burned lime to a solution of the carbonate (commonly called the sub-carbonate) of potash. In the London Pharmaeopœia, the proportions employed in the manufacture of *liquor potassæ* are, one pound of the carbonate, half a pound of lime, and a gallon of water. The theory of the process is simple: the lime takes the carbonic acid from the carbonate, setting the potash free, which dissolves in the water.

Re-agents.	Results.
$\dot{K}\ \ddot{C}$	$\dot{K}$
$\dot{Ca}$	$\dot{Ca}\ \ddot{C}$

To separate the carbonate of lime, the liquid is to be filtered, and then forms the *liquor potassæ* of the shops, which has been also termed *lixivium causticum*, or *potassa pura liquida.* The filter should be of cotton or linen, as paper and woollen are readily decomposed, and care should be taken, during the filtering, to exclude the air as much as possible.

If the liquor potassæ be evaporated to dryness in an iron pot, and the residual mass fused and cast in moulds, we obtain the *fused hydrate of potash*, called in the Pharmaeopœia, *potassa fusa*, and formerly termed, *cauterium potentiale, lapis causticus,* or *fused caustic kali.*

Sometimes, to render the potash less deliquescent, slacked lime is added to the solution of potash before it is evaporated to dryness. By this means we obtain a mixture of hydrate of potash and lime, called in the Pharmaeopœia, *potassa cum calce.*

Properties.—The *fused potash* of the shops is usually more or less coloured (brownish, greyish, or bluish), in consequence of the presence of foreign matters, especially iron; for pure hydrate of potash is white. It is soluble in water and alcohol; and during the solution in water heat is evolved. At a low red heat it fuses, and at a higher temperature is volatilized. Its specific gravity is 1·706.

Liquor potassæ is a limpid, colourless, odourless liquid, of an acrid taste. If quite pure, and free from carbonic acid, it will not effervesce with sulphuric acid, nor become milky by the addition of lime water; but as it strongly attracts carbonic acid from the air, it is rarely met with sufficiently pure to stand the last-mentioned test. If the solution should be free from carbonic acid, but contain lime, the production of milkiness by a little carbonate of potash will readily detect this latter body.

Characteristics.—Potassa fusa and liquor potassæ may be easily recognized as potash preparations, by the tests already mentioned. That they are preparations of *caustic* potash is shewn by their strong alkaline re-action (for example, permanently reddening turmeric, and rendering infusion of cabbage, green)—by not whitening lime water, or effervescing on the addition of a strong acid—by their soapy feel—and by the solubility of the solid potash in alcohol; for the carbonates are insoluble in this liquid. Alumina is soluble in caustic potash, but not so in the carbonate.

Composition.—Pure anhydrous potash is composed of—

1 atom potassium ······	40
1 atom oxygen ········	8
1 atom potash ········	48

Its symbol is $\dot{K}$. The *fused*, or *hydrate of potash*, consists of—

1 atom potash ········	48
1 atom water··········	9
1 hydrate of potash ····	57

Its formula is $\dot{K}\ \dot{H}$.

Frequently this substance contains a little peroxide of potassium.

The strength of the *liquor potassæ* may be determined by its specific gravity. A pint of that prepared according to the directions of the London Pharmaeopœia is said to weigh sixteen ounces, or 7680 troy grains. Now a wine pint of distilled water weighs 7292·3 Troy grains, and hence the specific gravity of this liquor is 1·0531; for—

7292·3 : 1000 :: 7680 : 1·0531.

Here is an extract from Mr. Dalton's table, shewing the strength of solutions of potash of different specific gravities:—

Atoms.		Potash per Cent. by weight.	Spec. Gravity.	Boiling Point.
Potash.	Water.			
1	8	39·6	1·47	265°
1	10	34·4	1·42	246
		26·3	1·33	229
		19·5	1·23	220
		13·	1·15	215
		9·5	1·11	214
		4·7	1·06	213

From this you will observe, that if the liquid had the specific gravity 1·06, 100 parts would contain 4·7 of potash; and, therefore, if the Pharmacopœial solution were pure, it would consist very nearly of—

Water	96
Potash	4
	100

Physiological effects.—In the concentrated form (as the *potassa fusa*), the local operation of caustic potash is exceedingly energetic. The alkali, of course, neutralizes any free acid in the part, and decomposes whatever ammoniacal salts may be present, causing the evolution of ammoniacal gas. Its chemical action on the organized tissues is most powerful, as may be well illustrated by experiments. Thus if you rub a little potash solution between the fingers, you experience a soapy feel, and by continued action the epidermis is corroded and dissolved. If we take a piece of fibrine (muscle, for example), and digest in a potash solution, an unpleasant ammoniacal odour is evolved, a little alkaline sulphuret is formed, and the fibrine is dissolved; the compound of fibrine and potash thus formed, may be termed *fibrate of potash.* The addition of an acid precipitates the fibrine somewhat altered in its properties, and combined with some of the precipitant, so that if the sulphuric acid had been employed, we should obtain a kind of *sulphate of fibrine.* The same kind of effect is produced by the action of potash on albumen: thus, this substance unites with the alkalies to form soluble compounds, which may be termed *albuminates.* Gelatine is also readily dissolved by alkalies, with the deposition of any phosphate of lime which it may contain. These phenomena are to a certain extent comparable to those of saponification. You see, then, that the caustic alkalies form soluble compounds with substances which enter largely into the composition of the organized tissues, and, therefore, you are prepared to admit the probability of Orfila's statement, that the alkalies are, of all corrosive poisons, those which most frequently perforate the stomach. For the intestinal mucus readily dissolves in alkalies, whereas it is coagulated by acids; so that the former are much more quickly brought in contact with the living tissues, which resist, for a certain time, the chemical influence of the caustics, but the affinities being powerful, the vital properties soon cease to offer opposition—the part dies—and then the alkalies commence their action on the tissues, which they speedily dissolve. Hence, if a large quantity of potash were swallowed, you would expect the most violent symptoms, though of the same general kind as when the mineral acids have been taken.

When small, or therapeutical doses of the solution of potash are administered, the first effect must be the neutralization of the free acid of the stomach, and which, according to the experiments of Dr. Prout, is the hydrochloric; so that we should then get a chloride of potassium formed. I do not pretend to know what can be the particular use of this acid in the digestive process, but presume, as it is a constituent of the healthy gastric juice, that it serves some important purposes; and I therefore can readily believe that the continued employment of an alkali, even in small quantities, must injure the assimilative process, by altering the chemical properties of the healthy ventricular secretion. Experience seems to prove the correctness of these *à priori* conclusions.

If the quantity of potash swallowed be more than sufficient to neutralize the free hydrochloric acid, but insufficient to have any chemical action on the living tissues, it acts as a slight irritant, increases the secretions of the alimentary canal, becomes absorbed, and alters the qualities of the fluids secreted, more particularly those of the urine. Thus Magendie has found, by the exhibition of alkalies to dogs, not only that the natural acidity of the urine was destroyed, but that this secretion was even rendered sensibly alkaline. Moreover, the modification thus produced in the quality

of the renal secretion, is accompanied by an increase in its quantity, so that the alkalies rank among our most powerful diuretics—an effect which may be, in part, owing to the local stimulus which they communicate to the secreting vessels, in their passage through them.

By continued use the alkalies give rise to increased activity of the different secreting organs, and of the absorbing vessels and glands; effects which are analogous to those caused by mercury. After some time the digestive function becomes disordered; the appetite fails; the blood is said to become thinner, and to lose its power of spontaneous coagulation, when drawn from the body; the whole system, but more particularly the digestive organs, becomes enfeebled; and a state precisely similar to that of scurvy is brought on. It is said, if the alkalies be temporarily suspended the blood speedily reacquires its coagulability, but loses it again when we resume their employment. These phenomena deserve notice in connexion with scurvy,—a disease which is brought on by the use of agents well calculated to give an alkaline property to the system, namely, salt, salted provisions, and animal food;—while the remedies most useful in the treatment are such as neutralize alkalies—namely, acids, or vegetables which readily generate acids. It appears to me, therefore, in the highest degree probable, that scurvy, and the effects caused by the employment of the alkalies, are both dependent on the same condition.

Uses.—Caustic potash is employed for various purposes in medicine, the principal of which I will enumerate. In the first place, it is sometimes used as an *escharotic*, though in this respect it is not free from objection; for its great deliquescence occasions some difficulty in localizing its action. For the production of an issue, however, it may be employed, but we must proceed thus:—Apply to the part one or two layers of adhesive plaster, in the middle of which is an aperture of the exact size of the intended issue. Then moisten the *potassa fusa*, or the *potassa cum calce*, and rub on the part until discoloration is observed. Wash, and apply a linseed meal poultice; and when the eschar is detached, insert the pea. In bites by poisonous animals, as venomous serpents, mad dogs, &c. this escharotic may be used with advantage. Mr. Whateley recommends the *potassa fusa* as the agent for arming caustic bougies to be applied in strictures of the urethra, but the practice appears so dangerous, (particularly on account of the deliquescence, and violent action of the caustic) that I believe it is now rarely, if ever, resorted to. There are many other cases in which this substance may be used, but which it is hardly necessary for me to enumerate. I shall only instance the destruction of warts and fungoid growths of various kinds, and the opening of abscesses, more especially in the groin; but for the latter purpose, I should always prefer the lancet.

(*b.*) As an *antacid* we resort to the *liquor potassæ* in various affections of the digestive organs, which are attended with an inordinate secretion of acid, known by the acid eructations, cardialgia, and other dyspeptic symptoms. It must, however, be evident, that the neutralization of the acid is merely palliative. But I think that the continued employment of alkalies frequently diminishes the tendency to acid secretion, though when the use of the remedy is suspended, this tendency generally returns. Commonly you will find that the cases calling for the employment of alkalies are those benefited by tonics, and hence I believe the alkali is, in most cases, best given in some mild bitter or tonic infusion; such, for example, as the infusion of gentian, or of quassia; the sulphate of quinia oftentimes disagreeing with the stomach in these cases, besides which it would be decomposed by the alkali. The beneficial effects of alkalies are said to be particularly observed in those forms of dyspepsia which result from the inordinate use of spirituous liquors.

Of course the liquor potassæ would equally neutralize acid which may have been accidentally or purposely swallowed, but it is rarely given for this purpose, on account of its irritant qualities, and because many other agents (as chalk, magnesia, and soap) are equally efficacious as antacids, while they are free from the objections which exist in these cases to the use of the caustic alkalies.

(*c.*) *To modify the quality of the urine*, liquor potassæ is a most valuable agent. I have already mentioned, that by the employment of alkalies, not only may the natural acid of the urine be destroyed, but even an alkaline property be communicated to it; so that whenever the secretion of lithic acid, or of the lithates, is inordinate, the alkalies present themselves to our notice as chemical agents for counteracting this condition. It has been supposed by some, that the efficacy of the caustic alkalies, in preventing the deposition of lithic acid gravel, consists in their holding it in solution; an explanation inconsistent with the fact, that the carbonated alkalies and magnesia are equally efficacious, though they are incapable of dissolving it. We are, therefore, led to the conclusion, that the alkalies actually prevent the formation of this acid, or neutralize the free acid in the urine, which is the immediate cause of the precipitation of the lithic acid; whether by an action on the

digestive organs or otherwise, we know not. In resorting to these agents in urinary deposits, you must be particular to avoid employing them when there is any tendency to the deposition of the phosphates. The phosphate of lime, which naturally exists in the urine, is held in solution in this liquid by some acid, as seems proved by the fact, that the addition of a caustic alkali precipitates it. Berzelius thinks the acid is the lactic, an acid which you will perhaps recollect I have already mentioned as probably performing the same office in the milk of animals. But I confess that the experiments of Mr. Brett, lately detailed in a very excellent paper in the MEDICAL GAZETTE, appear almost conclusive that carbonic acid is the solvent. The nature of the acid is to my present purpose, however, of secondary importance: it is admitted by all that the solvent is an acid, and that by the use of alkalies this acid may be neutralized, and the urine rendered alkaline. Now what will be the necessary consequence of this? Obviously the deposition of phosphate of lime; so that you observe the use of alkalies may actually cause the appearance of *white sand* in the urine; and in patients predisposed to its formation you may increase its quantity. You see, then, the important bearing these facts have on practice. "I have known," says Mr. Brande, "soda water exhibited in a case of stone in the bladder, *produce* abundance of white sand, which the ignorance of the patient and his medical attendant led them to refer to the solvent power of the medicine upon the stone, which they thought was gradually giving way and being voided; whereas, great mischief was doing, by giving the urine more than its usual tendency to deposit the phosphates, and, consequently, to augment the size of the calculus." In the treatment of the lithic acid diathesis, remember that the use of alkalies is, to a certain extent, a palliative mode of treatment, and, to be successful, must be conjoined with other means of cure. On this subject, indeed, I cannot do better than recommend to your attentive perusal Dr. Prout's work.

(*d.*) *In gout.*—It has long been known that some pathological relation exists between gout and lithiasis, though the exact nature of the relationship has not been made out. We know, for example, that gouty subjects are exceedingly prone to the formation of large quantities of lithic acid—proved, not only by the frequency of lithic acid deposits in the urine, but also by the gout stones or lithate of soda: and hence the remedies found useful in the one have been tried in the other complaint. This has led to the employment of alkalies in the treatment of gout.

(*e.*) The alkalies have lately been said to produce very beneficial effects in those *inflammations* which have a disposition to terminate in exudation and adhesion—that is to say, those that frequently give rise to the formation of false membranes, or of adhesions; such, for example, as croup, pleurisy, and peritonitis. If experience should subsequently confirm the assertions already made respecting their efficacy, we shall have another analogy between the operation of these alkalies and of mercury. Theoretically, it has been argued, the alkalies are likely to be beneficial in these diseases on two accounts; first, they have a tendency to diminish the supposed plasticity of the blood, which some have assumed (though without proof) to be connected with the exudation; and, secondly, we find these albuminous deposits readily dissolve, out of the body, in alkaline liquids. You must not, however, be led away with reasoning of this kind. In conclusion, I would just add that Eggert recommends the alkalies as specifics against croup; though Sundelin found them inoperative. Hellwag employed them to cause the removal of the deposited lymph; Memminger gave them with benefit in hooping-cough; Mascagni, in pleurisy and peripneumony. It is asserted that in the latter complaints the alkalies render the expectorated matter less viscid, and at the same time act powerfully as diaphoretics and diuretics.

(*f.*) In *induration* and *enlargement of the glandular system* the alkalies have also been recommended; for example, in bronchocele, mammary tumors, affections of the testicle, diseases of the mesenteric glands, induration of the liver, salivary glands, &c. I have seen the liquor potassæ remarkably beneficial in excessive enlargement of the lenticular or glandular papillæ at the base of the tongue.

(*g.*) In *syphilis* and *scrofula*, also, the alkalies have been employed with advantage. Some of the most obstinate and troublesome forms of the venereal disease frequently occur in scrofulous subjects, in whom mercury will not only be useless, but absolutely prejudicial. In two or three cases of this kind I have seen the liquor potassæ, taken in the compound decoction of sarsaparilla, of great benefit. Though scrofula may be relieved by the use of alkalies, there is no ground for believing that they have any power in curing this malady, as some have asserted.

(*h.*) The alkalies have been employed as *diuretics in dropsy*, especially when this disease arises from glandular enlargements, or other causes likely to be relieved by these remedies.

(*i.*) There are many other diseases in which the alkalies have been recom-

mended; but which I shall place together under one head, as I have barely time to enumerate them. In those *skin diseases* which are scaly (as lepra and psoriasis) the internal employment of the liquor potassæ has been found serviceable. In *chronic rheumatism*, as an emmenagogue in *uterine complaints*, and in some chronic *diseases of the lungs*, the alkalies have likewise been employed. Sometimes a very dilute solution of potash has been used as a *stimulating wash* to ulcers; and Dr. Paris tells us that Hannay's celebrated nostrum, the *Preventive Wash*, was nothing more than a solution of caustic potash.

Administration.—The mode of employing the *potassa fusa* in the making of an issue I have already described. For internal exhibition, the liquor potassæ is used in doses of from 10 drops, gradually increased to the extent even of a drachm, carefully watching its effects. It may be administered in the infusion of orange-peel. Table beer is said by Dr. Paris to disguise completely the nauseous flavour of the alkali; but of course if the beer be at all sour, the acid will neutralize the alkali, and render it inert as an antacid. Veal broth is another liquid for its administration, and we are told that Dr. Chittick's nostrum for the stone was the fixed alkali in this liquid.

Antidotes.—In poisoning by the alkalies, the antidotes are either acids or oil, both of which form salts with the alkalies, and diminish their causticity. Chereau prefers oil, which should be given to the extent of several pounds. Vinegar, lemon or orange juice, even the very diluted mineral acids, should be resorted to, if oil be not at hand.

Carbonates of Potash.

Three *carbonates* of potash are known, namely, the *carbonate* (which by way of distinction may be called the *mono-carbonate*), the *bicarbonate*, and the *sesquicarbonate*. Of these, the two first only are employed in medicine.

1. *Monocarbonate of Potash.*

History and synonymes.—This salt must have been known for a long period, though it was at first confounded with the carbonate of soda. In the eighth century, Geber showed how it might be procured, namely, by burning cream of tartar, dissolving the residue in water, filtering, and evaporating. It has been known by various names, such as *salt of tartar*, *mild vegetable alkali*, *fixed nitre*, and *subcarbonate of potash*.

Native state.—It is well known that carbonate of potash may be obtained in abundance from the ashes of plants, but it does not follow that it previously existed in the plants themselves; since it may be formed during the process of combustion, by the decomposition of other salts of potash, the acids of which are of a vegetable nature. The acetate, malate, and oxalate, (principally the first) are those salts which most probably yield the carbonate, when vegetables are burned. If, however, the circumstance mentioned by Mr. Parkes in his Chemical Essays be correct, in one case at least, the alkaline carbonate exists ready formed in the plant. He says, that some of the poor weavers of Yorkshire press out the juice of fern, and use it in the place of alkali, in the cleansing of cloth, at the fulling mills.

Preparation. — Carbonate of potash may be obtained from *wood ashes*. These, for the sake of economy, are principally procured in those countries rich in forests, such as America, Russia, Sweden, and Poland. For this purpose wood piled up into heaps is burned, either on the surface of the ground, or in pits dug for the purpose. The ashes thus obtained usually contain potash, soda, lime, magnesia, oxide of iron, oxide of manganese, silicic, carbonic, and phosphoric acids, and chlorine. They are lixiviated with water, which dissolves the carbonates, sulphates, and silicates of potash and soda, and the chlorides of potassium and sodium; and the solution being poured off from the undissolved matter, is evaporated in large iron pots, by which means a dark-coloured mass is obtained, called *rough potashes*, *cineres clavellati crudi*, or by the French, *salin*. The dark colour is said by Dumas to be owing to the *ulmate of potash*.

I may here remark, that the *ulmic acid* of this ulmate is formed during the combustion of the wood; it is an acid composed of—

30 atoms of carbon	.... =	180
15 atoms of hydrogen	.. =	15
15 atoms of oxygen	.... =	120
1 atom ulmic acid	.... =	315

By calcining potashes in a reverberating furnace until the dark colour is destroyed, we obtain *calcined potashes*, or *cineres clavellati calcinati*, called in the Pharmacopœia *potassa impura*, and usually known in the shops by the name of *pearl-ashes*. By this process the ulmic acid is decomposed, and, in consequence, the ulmate transformed into the carbonate of potash.

Pearl-ashes have frequently a red, green, or bluish tinge, the first depending on the presence of peroxide of iron, the second and third on the manganesiate of potash, which is always formed when pearl-ashes con-

tain manganese, and are heated to redness in contact with the air.

Pearlashes consist, for the most part, of the carbonate of potash, but mixed with sulphate and silicate, and also with chloride of potassium. Vauquelin analyzed some American pearlashes, and obtained the following products:—

Sulphate of potash	80
Chloride of potassium	4
Potash	754
Carbonic acid and water ..	308
Insoluble matters	6
	1152

In the Pharmacopœia you will find a process for the purification of pearlashes (which are called *Potassa impura*). It consists in dissolving 3 pounds of the salt in $3\frac{1}{2}$ pints of water, filtering, and evaporating in a copper (in the Pharmacopœia it is directed to be iron) vessel, the liquor being stirred, so that the salt may be granulated. The product is the *potassæ subcarbonas* of the Pharmacopœia, sold in the shops under the name of *salt of tartar*. As you will anticipate, this process does not give us a pure salt, for sulphate and silicate of potash and chloride of potassium may be readily detected in it, though the quantity is not usually very large, and therapeutically, the impurities are of little or no importance.

The high price of pearlashes has led to the manufacture of subcarbonate of potash from *sal enixum* (the bisulphate of potash), by heating it in a reverberatory furnace with charcoal. This yields sulphuret of potassium, in consequence of the carbon deoxidizing the bisulphate. By roasting, the sulphuret is decomposed, and converted into the carbonate of potash; the sulphur being dissipated, and the potassium oxidized and combined with carbonic acid from the fire.

Properties.—The *potassæ subcarbonas* of the shops is white, granular, and inodorous. Its taste and reaction on vegetable colours (as turmeric, and red cabbage infusion) are strongly alkaline. It is fusible at a red heat; has a strong affinity for water, so that by exposure to the air it attracts water, and becomes liquid, forming the *oleum tartari per deliquium*. It is very soluble in water; and in the Pharmacopœia is an officinal solution, called *liquor potassæ subcarbonatis*, composed of 1 pound of the salt dissolved in 12 fluid ounces of distilled water. The solution is colourless, and has a specific gravity of 1·446.

Pure carbonate of potash may be prepared by the combustion of cream of tartar and nitre, (forming what is called *white flux*), lixiviating, concentrating by evaporation, and crystallizing. The primary form of the crystal is a rhombic octahedron. This salt is insoluble in alcohol.

Incompatibles.—Most salts (except the neutral salts of potash and soda) are decomposed by carbonate of potash. I need hardly say acids are incompatible with it.

Composition.—The granulated carbonate (or subcarbonate) of the shops consists of about—

84	parts of the carbonate of potash.
16	parts of water.
100	

But when properly crystallized, its composition is—

1 atom carbonic acid	22
1 atom potash	48
2 water	18
	88

And its symbol is $\dot{K}\ \ddot{C}\ \dot{H}^2$

Impurities.—The nitrate of silver may be employed to detect the chloride salts,—the chloride of barium to recognize the sulphates present. To distinguish the silicic acid, supersaturate with hydrochloric acid, evaporate, and heat to redness: then lixiviate. The silicic acid is insoluble in water.

Characteristic tests.—It is known to be a carbonate by effervescing with the strong acids, and by a solution of it causing a white precipitate with lime water, soluble in acetic acid. That it is a potash salt, is determined by the tests for potash already mentioned. From the bicarbonate of potash it is distinguished by its precipitating a solution of sulphate of magnesia.

Physiological effects.—Its effects are precisely of the same kind as those of caustic potash already described, but much milder, on account of the presence of the carbonic acid, which diminishes the alkaline properties of the base. When it is taken into the stomach in large quantities, it acts as a powerfully caustic poison, —sometimes inducing death in twelve hours, and producing symptoms similar to those caused by the mineral acids: sometimes, however, the patient recovers from the immediate effect of the alkali, but in consequence of the altered condition of the alimentary canal, the assimilative process cannot be carried on; and after dragging on a miserable existence for a few weeks, the unfortunate sufferer dies of absolute starvation. And lastly, in some cases the caustic operation of the poison is principally confined to the œsophagus, causing stricture and death. In one case, related by Sir Charles Bell, the patient lingered with this disease for twenty years! I must refer you to Dr. Christison's work on Toxicology, for a more

detailed account of the poisonous operation of this substance.

Therapeutically, also, the carbonate of potash acts in a manner precisely similar to caustic potash, except that it is milder. It would, therefore, be tedious to go over this ground again.

Uses.—We employ this salt in medicine in most of the cases which we have already mentioned as adapted to the use of the caustic potash. For example, as an antacid in dyspeptic affections; in that form of lithiasis which is accompanied with an increased secretion of lithic acid, or the lithates; in those forms of inflammation in which there is a tendency to the formation of false membranes; in gout, &c.

Externally, it has been used in the form of a solution applied to wounds; as an injection in gonorrhœa; as a collyrium in some affections of the cornea, &c.

Lastly, the subcarbonate of potash of the shops is sometimes employed in the manufacture of the common effervescing draught, made with either the citric or tartaric acids.

20 grains of subcarbonate of potash are saturated by .. { 18 grains of citric acid, 18 grains of tartaric acid, or ℥iv. of lemon juice.

Administration.—It may be given either in the solid or liquid state. In the solid state it is given in doses of from gr. x. to to ℨss. The solution of the Pharmacopœia may be given to the extent of a drachm, or more.

Antidotes.—When swallowed as a poison, the antidotes are oils or acids, as already mentioned for the caustic alkali.

2. *Bi-carbonate Potash.*

History, synonymes, &c.—This is the salt called in the Pharmacopœia the *carbonate;* and by druggists frequently termed *aerated kali.* It was first prepared by Cartheuser, in 1752.

Preparation.—In the Pharmacopœia it is ordered to be prepared by passing a stream of carbonic acid through a solution of the carbonate. The operation is readily effected in a Woulfe's apparatus. The solution is then to be filtered, evaporated, and crystallized. I believe, however, all the salt of commerce is prepared by the following process:—Dissolve 500 parts of carbonate of potash in 1000 parts of distilled water, and then add gradually 300 parts of pulverized carbonate (or rather sesquicarbonate) of ammonia; apply a gentle heat until the ammoniacal gas is nearly all driven off; then filter and crystallize.

Theory.—Subcarbonate (or rather carbonate) of potash, I have already mentioned, is, as met with in commerce, an impure salt, one of the foreign ingredients being silicic acid. When carbonic acid is passed through the liquid, each atom of carbonate takes an additional atom of carbonic acid, and becomes bi-carbonate, the silicic acid being at the same time deposited.

In the second process, the volatility of the ammonia, joined to the affinity of the carbonate of potash for more carbonic acid, causes the decomposition of the sesqui-carbonate of ammonia: the ammonia with a small portion of carbonic acid is disengaged, while the remaining acid converts the carbonate into the bi-carbonate of potash.

Properties.—It is a crystalline solid, the primary form of whose crystal is, according to Mr. Brooke, a right oblique-angled prism. It is inodorous, has an alkaline taste, and re-acts very feebly as an alkali on vegetable colours. It is soluble in water, but is almost insoluble in alcohol. When exposed to the air, it undergoes no change. When exposed to a red heat, it gives out half its carbonic acid, and becomes the carbonate.

Composition.—It consists of

2 atoms carbonic acid	=	44
1 potash		48
1 water		9
		101

Its symbol, therefore, is $\dot{K}.\ 2\ddot{C}.\ \dot{H}$.

Characteristic tests.—The same as for the carbonate already described, from which it may be distinguished by its not precipitating a solution of sulphate of magnesia.

Impurities.—The substances likely to be present are the chloride of potassium, and sulphate of potash. The first may be recognized by nitrate of silver, occasioning a precipitate insoluble in nitric acid; the second by chloride of barium, producing a white precipitate insoluble in acids and alkalies. If any carbonate of potash, (that is, the sub-carbonate of the shops) be present sulphate of magnesia will occasion a white precipitate.

Incompatibles.—The incompatibles are the same as for the last-mentioned salt.

Physiological effects.—The effects of this salt are similar to those of the last, except that its local action is much less, in consequence of the additional atom of the carbonic acid, while the alkaline effect on the system is equally energetic, so that it is an exceedingly eligible preparation in lithiasis, and other cases where we want its constitutional, and not its local, action. You observe, then, that in proportion to the

quantity of carbonic acid in combination with the alkalies, the less powerful are they as local agents.

Uses.—I need not say any thing on the uses of this salt, since, with the exception of those cases where we employ caustic potash as an escharotic, we may use this salt, and frequently, indeed, with more advantage. In the production of effervescing draughts, it is commonly employed; the proportions to be used for this purpose are as follows:—

20 grs. of bicarbonate of potash will saturate $\begin{cases} \text{15 grains of citric acid,} \\ \text{15 grains of tartaric acid, or} \\ \text{ʒiijss. of lemon juice.} \end{cases}$

Where there is great irritability of stomach. I believe the effervescing draught made with this salt and citric acid, to be more efficacious than that made with carbonate of soda and tartaric acid, the citrate of potash being, in my opinion, a much milder preparation than the tartrate of soda.

Administration.—This salt may be given in doses of from gr. x. or gr. xv. to the extent of half a drachm, or even a drachm.

Sulphates of Potash.

Three sulphates are described—the *sulphate* (which by way of distinction may be called *monosulphate*), the *bisulphate*, and the *sesquisulphate*. Only the two first, however, are employed in medicine.

1. *Bisulphate of Potash.*

History and synonymes.—This is the salt called in the Pharmacopœia the *supersulphate of potash*, and which is known in the shops by the name of *sal enixum*, and was formerly termed the *acid vitriolated tartar*, or the *sal auri philosophicum*.

Preparation.—It is prepared by dissolving the salt left after the distillation of nitric acid, filtering the solution, and crystallizing. It is also a product of various other manufactures.

Properties.—It is crystallizable, the primary form of the crystal being either a right rhombic prism, or the rhombic octahedron. It has a very acid taste, and reacts strongly as an acid on vegetable colours, and decomposes the alkaline carbonates with effervescence. It is soluble in about twice its weight of cold water.

Composition.—It consists of—

2 atoms sulphuric acid ... =	80
1 atom potash	48
2 atoms water	18
	146

Its formula, therefore, is $\dot{K}\ 2\dddot{S}\ 2\dot{H}$.

Characteristic tests.—The presence of sulphuric acid may be recognised by the chloride of barium; while the potash may be recognised by the characters already mentioned for this substance. From the mono-sulphate of potash, it is distinguished by its acid taste, its action on litmus and the alkaline carbonates, and by its greater solubility.

Physiological effects and uses.—It is rarely used as a medicine. The excess of acid renders its local operation that of an astringent. When swallowed, it operates as a mild purgative, and may be employed in the same cases as the sulphate, over which it has the advantage of greater solubility.

Administration.—The dose of it is from gr. xv. to ʒij.

2. *Monosulphate of Potash.*

History and synonymes.—The mode of preparing this salt was taught by Croll in the early part of the seventeenth century. It has been known by various appellations, such as *vitriolated kali*, *vitriolated tartar*, *sal polychrest* (literally signifying, *salt of many uses or virtues*), *sal de duobus*, &c.

Native state.—Sulphate of potash is found both in the inorganised and organised kingdoms. In the first, it has been met with in some mineral waters of Saxony and Bohemia, in native alum, in alum-stone, and in a mineral called polyhalite,—in which Stromeyer found no less than 27·6 per cent. of the sulphate. The following are some vegetable substances said to contain it,—the root of Polygala senega, Winter's bark, the bulb of garlic, myrrh, opium, &c. The blood and urine of man also have it.

Preparation.—It may be prepared by adding lime, or its carbonate, to the bisulphate of potash, by which sulphate of potash and sulphate of lime are procured. In the Pharmacopœia we are ordered to obtain it by saturating the bisulphate with the carbonate of potash.

Properties.—It crystallizes in pyramids, the primary form of which is the right rhombic prism. It is unchanged by exposure to the air, or to moderate heat. At 60° F. it requires sixteen times its weight of water to dissolve it: in alcohol it is insoluble.

Composition.—It is an anhydrous salt and consists of—

1 atom sulphuric acid .... =	40
1 atom potash	48
	88

Its symbol is $\dot{K}\ \dddot{S}$

Characteristics. — I have already mentioned these, when speaking of the bisulphate.

Physiological effects. — It acts as a very mild purgative, without occasioning any heat, pain, or other symptoms of irritation. Its operation is, in fact, too mild for ordinary use.

Uses.—It is particularly serviceable as a laxative, in disordered conditions of the alimentary canal, as diarrhœa and dyspepsia. It is best given, as I believe, in combination with rhubarb. Thus, from five to ten grains of rhubarb, with from fifteen grains to two drachms of this salt, will be found to act mildly and efficiently in diarrhœa. The objection to its use is its slight solubility.

Nitrate of Potash.

History.—At what time this salt became known is difficult now to determine. As it is found in various parts of the East, on the surface of the earth, it appears probable that it must have been known at a very early period. But the terms *νίτρον* and *nitrum*, which occur in the writings of Theophrastus and Pliny, seem to have been applied either partially or exclusively to *natron* (sesqui-carbonate of soda). As I cannot spare time to enter fully into this historical discussion, I must refer those who feel interested in the subject to the learned and elaborate article in Beckman's "*History of Inventions and Discoveries.*" The word *saltpetre*, usually applied to nitre, is evidently derived from *sal petræ*, literally signifying, rock salt.

Native state.—This salt occurs in both kingdoms of nature. In the East Indies, Egypt, Persia, Spain, and other parts of the world, large quantities of it are found in the soil, sufficient, indeed, to pay the expense of extraction. It would appear to be formed below, and is brought to the surface of the soil by efflorescence. Some have thought that the nitric acid of the salt was formed by the union of the nitrogen and oxygen of the air, while others have supposed the presence of some animal matters were necessary to yield, by their decomposition, the nitrogen. In opposition to the last view, however, I may state that in a nitre cave at Ceylon, Dr. Davy found nitre, although there was no animal matter. The potash of the nitrate is in most cases easily accounted for, being found in some of the constituents of the soil, namely, feldspar and mica.

Nitrate of potash is met with in various plants; for example, in *cissampelos pareira*, *geum urbanum*, *parietaria*, *hemlock*, the *sunflower*, &c.

Artificial nitre.—Observation and experience having proved that nitre is annually formed in some countries, attempts have been made to imitate nature's processes, and, as we shall find, with success. In giving you some account of these experiments, I cannot resist quoting a few lines from Dr. Thomson's "*History of Chemistry.*" At the commencement of the French Revolution "all the great powers of Europe combined to attack France, assisted by a formidable army of French emigrants assembled at Coblentz. The Austrian and Prussian armies hemmed her in by land, while the British fleets surrounded her by sea, and thus shut her out from all communication with other nations. Thus France was thrown at once upon her own resources. She had been in the habit of importing her saltpetre and her iron, and many other necessary implements of war: these supplies were suddenly withdrawn; and it was expected that France, thus deprived of all her resources, would be obliged to submit to any terms imposed on her by her adversaries. At this time she summoned her men of science to her assistance, and the call was speedily answered. Berthollet and Monge were particularly active, and saved the French nation from destruction, by their activity, intelligence, and zeal. Berthollet traversed France from one extremity to the other, pointed out the mode of extracting saltpetre from her soil, and of purifying it. Saltpetre works were instantly established in every part of France, and gunpowder made of it in prodigious quantity, and with incredible activity." "This famous instance," says the eloquent Fourcroy, "never will be lost."

At the present time, in Sweden, each landed proprietor is obliged to furnish to the state a certain quantity of nitre.

The principles of the method of forming nitre will perhaps be readily understood by the following abstract of the processes that have been followed. Decomposing animal and vegetable matters, mixed with cinders, lime, or marl, are placed in heaps (called *nitre beds*) under cover, the mass being occasionally moved, or holes made in it, so that they are exposed to the air. From time to time they are watered with urine (a liquid containing more nitrogen than any other animal substance.) At the end of two or three years the nitrogen has combined with oxygen, and this with bases to form nitrates. By lixiviation the salts may be separated, and any nitrate of lime present may be converted into nitrate of potash by adding wood ashes, which contain carbonate of potash.

At Appenzel, a canton of Switzerland, nitre is formed from the urine of animals. A hole is dug near to stables, and in this is put a sandy kind of earth, which is kept moistened with the water running from

the stables. In two or three years this earth yields nitre.

Preparation of rough nitre.—The saltpetre, or nitre, used in this country, is brought from the East Indies, under the name of *rough* or *grough saltpetre*. It is there procured by lixiviating the soils known to yield it.

Impurities.—In the rough state nitre has a yellowish colour, from some extractive matter, and contains several other impurities, principally the alkaline chlorides; these are designated in commerce by the word "*refraction.*" Thus if a rough nitre should contain ten per cent. of impurities, it is said to have *ten per cent. refraction.* How this term came into use in this sense, I know not

There are three modes of ascertaining the degree of purity of rough nitre: *one* is by dissolving and crystallizing the nitre; the *second* is by washing the rough nitre with a saturated solution of the pure nitrate, so as to remove the impurities, the quantity of which would be known by the loss of weight which the nitre undergoes; and the *third* is that proposed by Gay-Lussac, namely, converting the nitrate into carbonate, by calcining it with charcoal, and then determining by an acid the quantity of potash present. All these methods are more or less objectionable, the third being the least so; but the two first are those usually followed.

Purification.—Nitre is purified by repeated crystallization. When it has been only once dissolved and crystallized, it is called *singly refined nitre*; when twice, *doubly refined.* Its purity is to be ascertained by testing it with nitrate of silver, which ought to occasion no precipitate with it.

Properties.—When pure it is colourless, has a sharp cooling taste, is crystallizable, the primary form of its crystal being a right rhombic prism: it undergoes no change by exposure to the air. When heated it fuses; and if cast in moulds forms the *nitrum tabulatum*, or *sal prunelle* of the shops. At a strong red heat it is decomposed, with the evolution of oxygen and the formation of hyponitrite of potash. One hundred parts of water at 32° dissolve 13·32 of this salt, but alcohol dissolves much less of it.

Composition.—It is an anhydrous salt, composed of—

1 nitric acid	54
1 potash	48
	102

Its formula is $\dot{K}\ \overset{\therefore}{N}$.

Characteristic tests.—It is easily recognized to be a potash salt by the tests already mentioned for these salts. That it is a nitrate is shewn by its deflagrating when thrown on red-hot charcoal; when heated with sulphuric acid, it yields brown fumes of nitrous acid; if a little of it be heated with a few drops of sulphuric acid in a tube, and a crystal of morphia dropped in, the presence of nitric acid may be determined by the red colour observed around the crystal.

Physiological effects.—In very large doses (such, for example, as one ounce or more) nitre has in several instances caused death; but the effects of it are not uniform, since in other cases it has not appeared to have any very remarkable or obvious effect. For example, Dr Christison knew one ounce taken without occasioning any other unpleasant symptoms than vomiting; and it was retained on the stomach for above a quarter of an hour. In those cases where violent effects followed the ingestion of it, the symptoms were twofold: on the one hand those indicating inflammation of the alimentary canal (such as pain, vomiting, and purging); on the other hand, an affection of the nervous system (marked by giddiness, convulsions, dilated pupil, insensibility, and palsy.)

The effects of nitre in moderate doses are not well ascertained. It is said to act as a refrigerant; but it can only do this when the body is preternaturally hot, for Mr. Alexander, in his experiments, found no perceptible diminution of heat in the external parts of his body. It would appear, however, that nitre powerfully affects the vascular system, for in most of Mr. Alexander's experiments he found the frequency of his pulse diminished; and that this effect was in part owing to the nitre, and not solely to the cold water taken with it, seems probable from the diminished action of the heart observed in other cases. Thus in two cases of poisoning by nitre, quoted in Dr. Christison's work, the pulse failed at the wrist, and there was great tendency to fainting. Diuresis is another effect produced by nitre: this has been very generally observed, and the urinary secretion has been found to yield evidence of its containing this salt. The simplest way of proving this is by immersing a slip of paper in this secretion, and when dry it will be found to act as touch-paper. When taken in repeated doses, it has a slight tendency to promote alvine evacuations.

Uses.—Nitre is rarely employed as an external agent, except as a means of producing cold. Thus five ounces of nitrate of potash, with five ounces of muriate of ammonia, and dissolved in sixteen ounces of water, will reduce the temperature of the liquid 40°; that is, from 50° to 10°,

according to Mr. Walker. Hence, therefore, we sometimes employ this mixture, placed in a bladder, as an external application, as already mentioned in the last lecture. Internally it is frequently exhibited as a refrigerant in febrile disorders, hæmorrhages, and other diseases in which we wish to reduce the action of the vascular system. In sore throat it may be dissolved gradually in the mouth. As a diuretic in dropsical cases, it may be occasionally serviceable. A mixture of nitre and powdered gum-arabic was at one time a favourite remedy to diminish the scalding in gonorrhœa.

Administration.—It may be given in doses of from ten grains to half a drachm. If administered as a refrigerant, it should be dissolved in water and immediately swallowed, in order that the coldness of the solution may assist the action of the salt. If employed as a diuretic, we ought to give liquids plentifully, and keep the skin cool.

Antidote.—No chemical antidote is known for this salt; we must therefore, as quickly as possible, remove the poison from the stomach, and administer tepid emollient drinks.

REPORT

OF

A TRIAL FOR INFANTICIDE *.

By Charles A. Lee, M.D.
New York.

Margaret Crosslan, an unmarried coloured girl, aged 22, was indicted for murdering her infant illegitimate child, and concealing its death, on the 17th of Nov. 1834. Her trial came on during the second week in September, before the Supreme Court of Massachusetts, holden at Lenox, Chief Justice Shaw presiding, assisted by Samuel Putnam and S. L. Wilde, Esqs., Puisne Judges.

The following is the substance of the testimony taken by the coroner, Robert Waterman, 18th Nov. 1834.

E. Barker, sworn.— Abigail Crosslan has had every appearance of being pregnant for some months past, but last evening I informed my wife that something more than common was the matter with Abigail, and that I did not believe she would go longer than to-night or to-morrow night. Last night she appeared to be unwell, but denied that she was sick. This morning she went about her usual work, doing the chores, and was out for a considerable time. We went this morning for her mother. She came, and went up stairs to examine the bed where her daughter slept; she came down and told her that she had lost her child. At first she denied, and then confessed it, and said it was no bigger than her fist. We then went out to the barn-yard; we there found the after-birth, and a quantity of blood in several places on the ground. The child was soon discovered, and, after I had examined it, I went and informed E. Enrign, Esq.

Mrs. Barker testified, that she had accused Abigail of being pregnant; that she denied it; that on Monday, the day the child was born, she kept about her work as usual, went at night to the barn-yard to milk; that she was gone a little longer than usual; came in and went down cellar after candles; that soon after the witness saw something on the floor, which she called Abigail to mop up, asking her what it was? She replied she did not know. It was afterwards discovered to be blood. The next morning she got up and went about her usual work. Suspecting that she had lost her child, she charged her with it, but Abigail denied it. After some time, she owned it, but said it was no bigger than her fist, and that she had buried it with a stick in the barn-yard. On searching, the child was found behind and partly under the barn, wrapped in a piece of an old bag.

Drs. Oliver, Peck, and Silas R. Kellogg, examined the body, under the direction of the inquest. Owing to the circumstances under which the examination was made, it was not so thorough as ought to be made in such cases. The body was that of a full-grown male child, and no external marks of violence appeared, excepting signs of effused fluid under the scalp covering the frontal bones. Blood was found in considerable quantity, partly fluid, and partly coagulated. The pericranium was separated from the bone; the parietal bones were both fractured, the left one in three places, radiating from a central point; the right in one, being a continuation, apparently, of the middle fracture of the left parietal, across the vertex.

The effused blood was principally over the back part of the parietal bones, and the upper portion of the occipital. The chest was externally arched, the lungs collapsed, and somewhat spongy. Dr. Peck testified, that the lungs filled the chest; that the injury was not inflicted after death, and that a blow sufficient to cause such injury would destroy life; that it must have been done after the delivery of the child, as the action of the uterus could

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* From the American Journal of Medical Sciences for Feb. 1836. We regret being obliged, in consequence of the length of his interesting report, to omit the *remarks* of Dr. Lee, subjoined in the original.—Ed. Gaz.

not fracture the bones; and that the circumstances of the case warranted the belief that it was done by the mother. To the question, by the court, whether the mother might not accidentally have caused the death of the child, by grasping the head for the purpose of facilitating delivery, it was replied, that he thought not—it was indeed possible that the bones might be fractured in this way, but if produced in this manner, it would not probably cause so much extravasation of blood. He thought it very difficult for a woman to be delivered standing, though it was possible; that females in labour instinctively seek a situation where they may support themselves and be supported—that is, a reclining posture; that the probability of the child's being born while the mother was standing, was increased in this case, by the circumstance that the labour was short, and that it occurred in a barn-yard; that, therefore, it was possible that the death of the child was occasioned by its falling on its head, upon the frozen ground.

Dr. Kellogg testified to nearly the same effect; he thought, however, that the fractures could hardly have been caused by the mother's grasping the head of the child, as the bones before the union of the sutures would lap upon pressure. At the time the inquest was held, he formed an opinion that it came to its death by a blow inflicted by a stick or some hard substance. In examining the lungs, a portion only was cut off from each, an inch and a half or so in diameter. In the first experiment, the temperature of the water was about 80 degrees of Fahrenheit; in the next it was of the ordinary temperature of the atmosphere. The lung floated readily in each; the pieces remained in the water three or four minutes. The whole lung was not removed, as they were pressed for time. Did not observe any appearances of blood in the lungs, and did not try whether they would crepitate on pressure. A child may be said to be born alive, when it is furnished with such an organization as to be capable of maintaining an independent existence, when separated from the mother. Could not say that this child was born alive in this sense—thought a woman would naturally, and, under all circumstances, seek a reclining position in labour—the effusion of blood might have been caused by a blow given shortly after death—thought that the presence of arterial blood in the lungs would furnish a much stronger proof of the child's having breathed than extravasated blood under the scalp.

Dr. C. A. Lee, on behalf of the prisoner, testified that he believed there was no difficulty in a woman's being delivered standing; that he had delivered several in this posture; had often known females seek such a position, resting their hands or arms on a chair placed before them; thought it a very natural and easy position for a strong lusty woman; that some of the older works on midwifery directed women to be delivered supported on crutches; had known cases where parturition had been effected by a single pain, and so suddenly that the mother had no time to get into a bed, or in a reclining position; that if a woman was suddenly seized with such violent labour pains in the street, or in a situation where the usual conveniences were not to be had, it was most probable she would be delivered standing; that this was probably the fact in the present case, as the fractures were in the very place we should expect to find them, had they resulted from such accident.

Dr. Sellor, of Amherst, also testified to that effect; and Mr. Swan, that his own wife was delivered in the same way. On the cross-examination, the medical witnesses for the government testified, that, in such cases, the physician ought to proceed according to the best authorities. The heart should be taken out with the lungs; the large vessels tied; the ductus arteriosus and venosus examined; also, the foramen ovale, the brain, and abdominal viscera; and, particularly, the colour of the lungs, crepitous feel, &c. All the tests should be used in such cases which are recommended by writers on the subject, and even then there will remain a sufficient degree of uncertainty.

On summing up the case, H. W. Bishop, Esq., on the part of the prisoner, after a happy exordium, in which he adverted to the importance of the case, remarked in substance, that he should confine his observations chiefly to the first count of the indictment, which charged Margaret Crosslan with destroying her infant child; the government here were bound to make out a clear case—they must not talk of probabilities or of circumstantial evidence, the burden of proof rests upon them. As to her pregnancy, that we are willing to concede, but they must prove that this child was born alive, and with organs sufficiently perfect as to support life independently of its mother.

Was this child born alive? The physicians, able and learned as they are, and distinguished in their profession, are still young, and they had not the means at hand of conducting the examination according to the most approved tests. It is very evident that it was not satisfactory to the physicians themselves; and how was it conducted? The books direct that extreme caution should be used in such an

investigation. 1st. The general appearance of the body is to be carefully noted, its size, weight, and strength, as also the proportion of the different parts carefully ascertained, whether there are signs of putrefaction, desquamation of the cuticle, ecchymoses, and other marks of violence, and particularly whether the umbilical cord has been ruptured or cut; and if ruptured, whether at the end or in the middle. If there are effusions of blood about the head, it is to be inquired whether it is probable they were produced by efforts of parturition, or by external violence. It should also be ascertained whether there are any foreign bodies in the mouth or trachea. These and many other particulars are to be ascertained, before proceeding to the dissection, which ought to be pursued in the manner recommended by Beck, Smith, and other writers on medical jurisprudence.

After laying open the cavity of the chest, it should be observed whether the lungs fill the thoracic cavity, or whether they are shrivelled and collapsed, and particularly whether their colour be florid or lightish gray. The position of the diaphragm should then be noticed, whether it be depressed or elevated. The ductus arteriosus and foramen ovale should also be examined, to ascertain whether they are open or closed.

The large vessels are now to be tied, and the heart and lungs taken out together, in order to subject them, in a satisfactory manner, to the hydrostatic test. In this experiment the temperature of the water should be that of the atmosphere, and care should be taken that it contain no gall. After using these precautions, and ascertaining whether the lungs will float, with the heart attached, the large vessels are to be tied, and the heart separated; after trying whether they will then float, they are to be weighed, in order to ascertain their relative weight compared with that of the body. This constitutes what is called the test of Plouquet; it is not the most valuable, but it is one which writers say should not be omitted. Incisions should then be made into the lungs, to see whether the tissue be spongy or compact, healthy or diseased, colourless or florid, whether crepitous on pressure, and the blood-vessels injected. These are only a few of the particulars to which the attention of the physician must be directed, in order to form any satisfactory opinion whether the child respired after birth. In the present case these points were nearly all omitted; nothing was done but to cut off a portion of each lung and throw it into warm water — of course it would swim; the temperature of the water would cause such a rarefaction of the fluids and the air vesicles as to sustain it upon the surface, even though the infant had never breathed. The experiment is, therefore, wholly unsatisfactory. True philosophy is not satisfied with a single experiment. She refutes and changes them in every possible manner, before she deduces those general principles which she is willing to publish to the world. The condition of the pulmonary blood-vessels has always been considered a most important indication in such cases. If they are found charged with arterial blood, the surface of the lung presenting red points when cut into, it is very conclusive proof that the child was born alive; and we have the testimony of the physicians, that this would be a far better test than the extravasations of blood which were found about the head. Yet even this point was neglected in the hurry of the examination.

Again, we are told that there were fractures of the parietal bones, and considerable effusion of blood under the scalp. This being partly fluid and partly coagulated, is supposed to prove that the circulation was going on at the time the injury was received. Yet such appearances have been found where the infant did not survive delivery, and from the contractile force of the uterine pains. Physiologists tell us that the moment the nervous agency was destroyed the circulation ceases, as in cases of death by lightning, and severe blows, &c. If a blow, however, is received sufficient to impair, but not entirely destroy the nervous power, the circulation will go on as usual, as long as life continues. Such extravasations may, moreover, be caused by fœtal circulation, without supposing that the child ever breathed. It rests with the government to prove, that this infant was born alive, and capable of supporting an independent existence; *i.e.* that its nervous, sanguineous, and circulatory systems, were sufficiently perfect. Has this been done? But if the child was born alive in this sense, who killed it? Was it destroyed by exposure to cold, falling upon the frozen ground, by a blow from the mother, or by her dashing it to the earth? The government say, it was by one of these particular modes; let them prove it. I know that it is possible the infant might have lost its life by blows inflicted by the mother, but we are not now called on to discuss possibilities, or even probabilities; the government must show that violence has been committed.

As to cases of delivery, when the mother is standing, they may be rare, but they do sometimes happen, as the medical witnesses for the prisoner testify. They may not often occur in genteel practice, and the reason is, that labour is usually more protracted, and the female is directed by

her physician to take a reclining position; but in humble life it is far different. Now, gentlemen, this poor, ignorant girl, was delivered on the night of the 17th of November, on frozen ground, in a barn-yard, during a storm of commingled rain and sleet. It is worthy of remark, that there were no marks upon her clothes, as there must have been had she lain down, and thus been delivered. This is strong evidence that she was delivered standing. The cause of the fractures on the top of the skull will now be obvious: they were caused by the child's falling suddenly to the frozen ground. In Beck's Medical Jurisprudence, we have an account of a series of experiments performed in a French Hospital, to ascertain from what height a fall upon the head of a still born infant would fracture the skull. In a large majority of cases it was found that a fall from the height of eighteen inches, was sufficient to break the parietal bones; and what is worthy of particular remark, is, that the fractures in these experiments were caused in precisely the same situation in which they were found in the present case. It is then shown that a slight blow, comparatively, will fracture the cranium of a new-born infant. It has been proved that the manure had all been removed from the yard a day or two previous, and that the gravelly soil, rendered compact by long treading, was moreover frozen, thus presenting a surface as hard as the walk before this court-house. But the prisoner is charged with being "wilfully delivered in secret;" but she was not so delivered. It was her wish that it might happen under different circumstances; but imperious necessity forbade. You may be told that she might have gone to the poor-house; but this supposes a knowledge of the law. She could neither read nor write, and knew nothing about the poor-house; she knew that Mr. B. would not have her in his house; she had no home at her drunken father's; and no place to which she could go and find a comfortable asylum.

The conclusion of Mr. Bishop's able argument was occupied in showing that there were sufficient motives for the prisoner's concealing the child, without supposing that she destroyed it and then concealed it, for the purpose of secreting its death.

On the part of the commonwealth, Mr. Austin, the Attorney General, remarked in substance, that he was not about to make a formal speech, but to reason with the jury, and converse with them, as rational men, anxious to come at the truth, whatever it might be. Laws like this, which punish capitally for taking the life of a human being, are of the mildest kind. They tend to the preservation, and not the destruction, of life. But it is better to have no laws, than such as cannot be executed. Now, if the doctrine, for which the opposite counsel contend, be true, then it can never be shown in any case that a woman is guilty of infanticide. No direct evidence is to be expected in a case of this kind; for it pre-supposes that it is done secretly, and we have to rely on circumstantial evidence alone. As a general rule, no direct proof can be furnished; and if such is to be required, then all this legal array is a mere mockery, and you have been called from your homes and firesides for nothing. All you can ask, is, the *best evidence of the kind*. And now, what is the case? It is, that a wanton and lascivious woman was in a condition to have a bastard child, as she had already had one; and she knew very near, if not exactly, the time when she might expect her accouchement. In the next place she denied her pregnancy—made no provision for the infant, and no attempt to find a suitable place in which she might be delivered. In this situation, when the time came, she went into the barn-yard, was delivered by a rapid process of labour, destroyed the child by blows upon its head; wrapped it in an old cloth, hid it under the barn; then returned to the house, said nothing about what had happened, and when charged with losing her child the next morning, she denied it—at length confessed it, but said it was no larger than her fist, and that she had buried it with a stick. Now, all these are circumstances furnishing strong presumptive evidence of guilt, and you are to give them their full weight in forming your verdict. If there is not satisfactory proof that the child was born alive, then the prisoner is to be acquitted; or if born alive, and accidentally fell from her arms, or propelled by the efforts of labour to the earth, then she is not to be declared guilty. Now, it is possible that the child came to its death accidentally, or that the mother destroyed it: you are to decide which. There is nothing, scarcely, but what may be said to be possible. It is absurd to talk of reasonable doubts, when all the evidence is adduced which ought to be expected. As the child was not heard to cry, the opposite counsel tell you we have not the best evidence of life. But there is far better evidence of life than that; walking is better, and talking is better still. But, supposing that the child had cried, it could only have been heard by the mother. But was the child born alive? The opposite counsel have brought a French book here, which I think had better have remained in France, in which the opinion is maintained that a child may breathe, and

still not be born alive. It may be technically true, that an infant may be born with such an imperfect organization as not to be able to maintain an independent existence, and thus speedily perish, but such a case would exhibit no marks of violence. But it is contended that a child may be half born and breathe; but from pressure on the cord, or other causes, may be still-born. The law knows nor recognises no intermediate stage. This is a horrid doctrine, and, if established, must lead to horrid consequences. If no other good results from the present trial than to place a veto upon such a doctrine, it will prove a lasting benefit. You are to inquire whether there is satisfactory proof that this child breathed, and whether it had the capacity of maintaining life. Here science comes to your aid, and philosophy stretches forth her helping hand. There are eight or ten different modes of ascertaining whether an infant was born alive. Can you expect that physicians will try all their tests, and keep a coroner's jury all night to go through them all? No! They will take this course:—they will try a sufficient number of experiments to make up an opinion; if not satisfied with one, they will proceed to others. Complete satisfaction is all you ought to ask. A cask cannot be more than full. Now, there are two grand tests: one is called the hydrostatic—the other, the test of Plouquet. After the child has breathed, the lungs become specifically lighter than water; before respiration, they are heavier, and sink. If, then, the lungs be immersed in water, and float, we infer that the child was born alive; and this was the fact in the present case, as proved by the medical witnesses. If the experiment was a fair one, and satisfactory to the physicians, what more do you want? One such experiment is as good as a thousand. But it is objected that warm water was used, and therefore no dependence is to be placed upon the test. There would be some foundation for such an objection, had the temperature of the water been as high as 200°, but the doctor testifies that it was only about 100°, and 80° is said in the books to be the most suitable temperature. It should be recollected, moreover, that the lungs floated in cold water likewise. Now, there may be, and are, exceptions to all rules; and so it is here. Putrefaction or artificial inflation may both cause the lungs to float, but neither of these are contended for.

The test of Plouquet consists in ascertaining the relative weight of the lungs, compared with that of the body, as that of the lungs is increased after the circulation of the blood through them has taken place by the establishment of respiration. But this experiment requires very nicely adjusted scales and the greatest care, and it is one which, in ordinary cases, cannot be performed. To the objection that a child may breathe when but half born, and then die in this amphibious state, before it is wholly brought into the world, it is hardly necessary to reply, by showing that this could not have taken place in the present case, as it only happens in tedious and protracted cases; and, besides, in such instances the skull surely could not have been fractured, without culpable negligence or manifest design on the part of the mother. Was there a sufficient motive for her to take the life of this infant? There was. It was to get rid of trouble, shame, and suffering. She had already been disgraced by giving birth to a bastard child; she was afraid to be confined at Mr. Barker's; she could not go home to her father's; and she thought if the child was only out of the way, she should get along easily. This was the motive, and it was a malicious one. The blows upon the head caused its death, as is known by the effusion of blood, which could not have occurred after death. The fact of the concealment of the child has again and again in our courts been decided as proof to show that the mother was guilty of the murder. In ordinary cases, if a person should die in company with another, would the latter attempt to conceal it? Would a woman hide her child under a barn if it happened to perish during delivery? Should she do so, would it not be a suspicious circumstance?—ought not some satisfactory reason be given for it? Had she not been guilty, would she not unhesitatingly have carried the child into Mr. Barker's, instead of denying its birth and its death? If there is a single point established in morals, it is that guilt and falsehood go together. Innocence never prompts a lie. There, then, is conclusive evidence that she was criminal. But it is objected that the child may have fallen to the ground, and thus fractured its skull and caused its death. Reference has been made to experiments performed in a French hospital, where still-born infants were suspended by the heels, and thus let fall head foremost upon a hard floor, fracturing their skulls. From these you are asked to draw the original inference, that an American woman may go into a barn-yard, stand up, and with one mighty throe give birth to a child; that that child may respire, have the blood sent through its lungs, and all the phenomena of life be fully developed in its passage from the mother to the ground! There is not a case on record where a woman voluntarily assumed a standing position to be delivered. Those French physicians

who performed these experiments do not say that women are ever delivered standing. Animals are guided by instinct to lie down when in labour, and woman also, in the extremity of pain, is prompted to take the same posture. But it is contended that this infant breathed, and then was propelled by another pain to the earth. If so, this must have been a very remarkable birth. It had to fall but eighteen inches, and if it stopped short half way to breathe, it could not have fallen even thus far, and certainly not sufficiently rapidly to cause its death. Besides, how are you to account for the extravasation of arterial blood? (Here Judge Shaw observed, that the physicians only testified that the extravasation, in their opinion, showed the existence of fœtal life at the time of the accident, and not that respiration was established.) After some further remarks on this point, Mr. Anstin concluded his argument, by saying, that the case derived much of its importance from the probability of its being quoted as a precedent, and as influencing future decisions. After an able review of the testimony, by Judge Shaw, the Jury retired, and the next morning brought in a verdict of *Not Guilty*.

[In his remarks appended to this Report, Dr. Lee comes to the conclusion, that the verdict was a correct one; and that the child, "if born alive, came to its end by accidentally falling on its head."

The arguments of the learned counsel, we beg leave to add, do them the highest credit. We wish *our* barristers were prepared to grapple with questions of this kind with the same ability and extent of medico-legal knowledge.—Ed. Gaz.]

CASE OF RECTO-VAGINAL FISTULA SUCCESSFULLY TREATED.

To the Editor of the Medical Gazette.

Sir,

If you think the enclosed case, copied from my note-book, sufficiently interesting, I will thank you to give it a place in your valuable publication.

I am, sir,
Yours truly,
George Fielding.

Hull, March 22, 1836.

On the 4th of December, 1834, Mrs. D. ætat. 29, a tall, healthy, fine-looking woman, reports—that on 22d March, 1833, she was delivered, by instruments, of a dead child, after a hard labour of three days,—that on the second day she was very feverish, suffered great pain, and passed no urine until the afternoon of the 23d, by catheter, which was employed eighteen days; the bowels were opened that day with considerable pain and difficulty, and the nurse distinguished something like a shred of dead matter hanging about the parts. She again took opening medicine on the 27th, when she found, to her very great distress, that she had lost all power of retention, and the fæculent matters passed from her involuntarily as she lay in bed. In time, the soreness and pain subsided, the bladder recovered it's tone, and she regained health and strength; but from the 27th to the present hour she has never been able to retain the alvine contents, (except now and then when very costive) which passed off at all times and in all positions.

Many remedies had been proposed and tried; amongst others, sponges and pessaries, without success. On examination, I found no vestige of perinæum: a cicatrix extending from the commissure of the labia downwards, along the inner side of each tuber ischii, was apparently lost in the anus. Upon dilating the parts fully, a semilunar aperture at the posterior part of the vagina was discovered, more than half an inch in depth, and of nearly the same breadth; the finger passed at once through this opening into the rectum; the posterior and lateral parts of the rectum seemed to be entire. This semilunar aperture was found to involve a part of the posterior wall of the vagina, a portion of the anterior part of the rectum, and the sphincter connected with it.

Hence the inability to retain any matters in the cloaca, and hence it would appear that there had been a sloughing of the perinæum, posterior wall of the vagina, and the corresponding anterior portion of the rectum with the sphincter. Under such circumstances, little could be confidently promised; however, I proposed to try the following operation, with a view to restore, if possible, the use of the sphincter, so as to enable her to have some command over the fæces—a matter of great importance to one who appeared scrupulously neat and cleanly in her person and habits.

Dec. 10th.—After due preparation, I pared off the edges on both sides of the semilunar aperture from the involucra

of the sphincter upwards to a point at its apex, in the way usually practised in hare-lip; the incision then resembled the letter Λ inverted; the lips were now drawn carefully together by two sutures, one through the sphincter, and the other higher up; no dressing employed; the patient kept in a recumbent position, and dieted on barley water and tea. The only inconvenience that followed the operation, was pain in the direction of the coccyx up to the loins during that day and the following night, but without febrile symptoms; and retention of urine for nine days, for which the catheter was employed.

13th.—The threads having become slack were carefully cut and drawn away; there was partial union at one part of the sphincter, with healthy granulations above and below it.

16th.—Granulations slightly touched with arg. nitr.; and on the following days.

17th. — Nothing having passed the bowels since the operation, a little castor oil ordered.

18th.—A liquid alvine evacuation; does not think herself any better, but it is clear that granulations are filling up the aperture more and more; an extra sized wax bougie passed two or three inches up the rectum every day, and retained a short time; same diet observed; allowed to sit up a while.

21st. — Castor oil again taken, the bowels not acting.

22d.—This morning, as soon as I made my appearance, with every expression of delight in her countenance, she said, " Sir, I have the pleasure to tell you, that when the oil operated this morning, I had sufficient command over myself to pass from this room up one flight of stairs without any inconvenience, the first time since my confinement" (twenty months). The parts filling up and closing; same treatment pursued; a little better diet.

25th.—Bowels have acted naturally once a day; has no difficulty of retention until she can retire; the parts now present only an irregular line, in place of the deep aperture; granulations not entirely healed; took an airing in a carriage.

Jan. 24th, 1835.—Have seen Mrs. D. twice since last report, and touched the parts with caustic, which are now quite healed. Instead of the deep indentation, they present only an irregular line. Mrs. D. informs me, that she has ever since the 22d. ult. had perfect command, even when obliged to take aperients.

Jan. 1836. — Since the above was written, Mrs. D. has given birth to a living child, and remains well.

CONTRIBUTIONS

TO THE

PHYSIOLOGY AND PATHOLOGY OF THE ANIMAL FLUIDS;

CONTAINING

Experiments and Observations on the Effects of Certain Substances upon the Blood; on the Coagulation of the Blood; on the Difference between Membranous and Sanguineous Serum; on the Formation of the Buffy or Inflammatory Crust; on the Formation of Pus; on the Functions of the Lymphatic System; and on the Process of Sanguification.

By Andrew Buchanan, M.D.,
Junior Surgeon to the Glasgow Royal Infirmary.

The numerous subjects comprehended in the preceding title may appear heterogeneous enough, but I hope to be able to make it appear that there is a link of connexion existing among them. Considered under a medical point of view, they all relate to the changes which the albuminous fluid named serum is liable to undergo from the action of the bodily organs, or from the re-action of its own elements; and considered under a physiological point of view, most of them are more or less connected with the complicated process of sanguification.

Some of the experiments which I am about to detail, were made as far back as the year 1820, when I was resident in the Royal Infirmary of this city, and had plenty of blood in the liquid state at my command. Most of them, however, were made in the winter of 1830-1, when I enjoyed equal facilities in conducting them, from holding the office of surgeon to one of the six districts into which at that time the town was divided. I continued to prosecute these experiments as opportunities presented themselves in my private practice, or were afforded to me by the kindness of my medical friends. I have had many opportunities of repeating and confirming them since I commenced acting as attending surgeon to the Infirmary, in the beginning of last summer, but I have not been able to add to them any new fact of importance. The experiments on the formation of pus

bear the earliest of these dates. The experiments upon the blood then made, were undertaken with the view of establishing that the substance named *fibrin*, which constitutes the basis of the clot of blood, was merely a modification of serum, and not entitled to be considered as a distinct animal principle. That conclusion, although not warranted by the experiments then made, is abundantly established by subsequent experiments, which shew that the basis of the clot is formed by the combination of sanguineous and membranous serum. The experiments made in 1830-1, were undertaken for an object which had no connexion with the results to which they led. In the prosecution of an inquiry into the action of medicinal agents upon the human body, I was led to mingle various substances with blood in the liquid state, as it flowed from the arm. I tried in this way various simple substances—alkalies, acids, salts, and metallic preparations; but these experiments I pass over, as having no connexion with our present subject. I next tried substances of an organic kind. The results afforded by some of these last experiments were not less interesting than they were unexpected; and it is to them that I have now to request the reader's attention.

1. *Membranous serum, and liquified coagulum.*—Without regarding the order of time in which these experiments were made, I pass over those made with sweet oil, and with gelatin, and shall first mention those made with serum from the tunica vaginalis testis.

On the 20th of March, 1831, I tapped a stout healthy young man for hydrocele. There was drawn off more than a pint of serum, which was clear straw-coloured, and very rich in albumen. I had previously ascertained that the crassamentum, or clot of blood, admitted of being completely broken down, and again reduced to the liquid state, by expression through a linen cloth. Having treated in this way the crassamentum of some blood drawn the day before, I mixed the liquified crassamentum with a portion of the hydrocele serum. Next day I found that they had formed a coagulum together. The coagulum was of a perfectly homogeneous structure throughout, firm, florid, and translucent; no serum separated from it, as from the common coagulum of blood. On repeating this experiment, I always obtained nearly the same result. The colour of the new coagulum was more or less pale, according to the quantity of red particles which it contained. The coagulation took place even when the liquified crassamentum was considerably diluted with water; in which case the coagulum obtained so exactly resembled red currant jelly, that it would readily have been taken for that substance, but for a knowledge of the mode in which it had been prepared.

To ascertain whether the secondary coagulation did not depend upon a property which the disintegrated clot might possess, of coagulating spontaneously, I reduced a clot of blood to the liquid state by expression, and allowed it to stand 48 hours. No coagulation took place, nor did the liquid in any respect alter its appearance, except by becoming a little thicker from spontaneous evaporation. On now adding a portion of serotal serum, the secondary coagulation took place as usual. The liquified crassamentum has, therefore, no tendency to re-coagulate *per se*, the secondary coagulation being obviously owing to the addition of the serotal serum. I found, in like manner, that the secondary coagulum, on being broken down into a liquid, did not re-coagulate spontaneously.

I next tried whether the liquified crassamentum would re-coagulate on mixing it with the serum of the blood, but no coagulation ensued, shewing a difference of properties in this respect to exist between the serum of the blood, and the serum I had derived from the serotal cavity.

My next object was to ascertain whether the property which I had recognized in the serum, upon which my experiments had been made, depended on any accidental circumstance, or was a general property of the serum exhaled into the serous cavities. The first experiments for this purpose were made with serum obtained from the abdomen of a female who died of ascites, consequent upon a scirrhous state of the stomach. I had twice tapped the patient, once in the usual way, and once through the urinary bladder. She died after a very protracted illness, in a state of great emaciation. Notwithstanding, the serum found in the abdomen after death was not deficient in albumen, and on trying it in numerous experiments with liquified crassamentum, I found it to comport itself, in every respect, like the

serum from the tunica vaginalis testis. The coagulum formed, became florid, or arterialized on the surface, where it was exposed to the air, and, as in the previous experiments, there was no separation of serum. Some time after, I had an opportunity of repeating these experiments with serum obtained from the cavity of the chest; and obtaining the same results, I then considered myself entitled to conclude that the property of forming a new coagulum with the liquified crassamentum of blood, was a general property of the serum exhaled into the serous cavities. It will be seen, however, below, that this general rule is not without its exceptions.

2. *Membranous and sanguineous serum.*—From the experiments I have related, I was disposed to conclude that it was the colouring matter of the blood which gave to the liquid mass its tendency to coagulate, and a considerable period elapsed before I discovered the fallacy of that opinion. The following experiments had the effect of undeceiving me in this matter. I mingled together some peritoneal serum, and serum of the blood; a coagulum was formed, but not a complete one, a portion of the mixture remaining liquid. I repeated the experiment, but it did not succeed. I was uncertain whether to impute the failure of this latter experiment to the change of qualities in the peritoneal serum, which was now so far advanced in putrefaction as to smell most offensively, or to suppose that in the first-mentioned experiment, I had been deceived by the presence of colouring matter in the sanguineous serum, which often contains more or less of it. To remove this difficulty, I procured ℥x. of a light straw-coloured serum from the body of a man who died of an abdominal disease, but who had also a hydrocele, from which I drew off the water after death. With this new supply, I repeated the experiment of mixing together membranous and sanguineous serum. To prevent any admixture of colouring matter in the sanguineous serum, I drew it off from around the clot of blood by means of a syringe, and thus obtained it perfectly limpid. About equal parts of the two kinds of serum were mixed. A beautiful pellucid and pretty firm coagulum was formed. It was sufficiently firm to admit of being transferred from one vessel to another, without breaking. It was, when first observed, of the same volume as the liquid in which it was formed, but gradually contracted in size. I have since repeated this experiment very frequently with serum obtained from the serous cavity of the testis, from the cavity of the peritoneum, from the cavities of the pleura, and from the pericardium. The result has generally been the same as I have just described, but not always so, as will be seen in the account of some experiments inserted below. With serum, again, obtained from the serous cavities of the head, and from the cellular membrane, the success of the experiment has never been but imperfect.

I was thus satisfied that the colouring matter of the blood had no share in producing the coagulation observed in these experiments. To show this more directly, several experiments were made by mingling membranous serum with the colouring matter of the blood, separated from the clot by means of water, but however strong the solution, no coagulation was produced.

The best mode of observing the coagulum formed by membranous and sanguineous serum, consists in mingling equal parts of the two liquids in a watch-glass, or larger vessel of a similar shape, and viewing them from time to time, by placing the glass vessel in a favourable position, between the eye, and the light of a candle. In this way the coagulation may be perceived before the coagulum has acquired sufficient solidity to be easily seen in passing the serum from one vessel to another. It will be farther seen that the coagulation goes on increasing for several days. The structure of the coagulum also is best perceived by this mode of observation. The coagulum is obviously of a cellular structure. It has at first very much the appearance of a cobweb spun through the liquid; and although it afterwards becomes denser, it is still distinctly seen to consist of solid filaments, intersecting each other in all directions, and thus forming a net-work, in the meshes of which is contained that portion of the two serous fluids which retains its liquidity. This being exactly the texture of the common cellular membrane, it appears to me not improbable that a coagulum of this kind may be the matrix in which the cellular tissue is primarily developed. On pouring off the liquid surrounding the coagulum, and contained in its meshes, and substituting water for it, the coagulum contracts in

size, and assumes a membranous form. It is of a pure white colour, is insoluble in water, cold or hot, and possesses the other characters of fibrin. On putting the coagulum upon a linen cloth, the liquid filters through, leaving the membrane behind, which is sufficiently firm to admit of being rolled up, and again unrolled in water, without laceration. Altogether the coagulum may be very aptly compared to the colourless species of Medusa, or sea-nettle, a portion cut out of the solid part of which is colourless and transparent, consists of a cellular tissue containing a watery fluid, and when that watery fluid drains off, or evaporates, shrinks in every direction, and leaves only a membrane behind. The vitreous humour of the eye is a texture of the very same kind, consisting of a liquid contained in the cellular meshes of the hyaloid membrane. The white of egg also consists of an albuminous fluid contained in the cells of a membrane, which is, I think, very probably not *organized*, (if we are to understand by that term the product of vascular action) but formed by a physical action, analogous to that described above.

3. *Liquid blood and water.*—The following experiment was intended to shew that the structure of the common coagulum of blood did not differ from that just described, except in having a much greater density.

Half an ounce of blood was received as it flowed from a vein of the arm, in a small gallipot. The same quantity was also received in six other vessels, containing respectively of water the following quantities, ʒss., ʒi., ʒiss., ℥ii., ʒiiss., and ʒiii. After mixing thoroughly the blood with the water, the vessels were set aside. Coagulation took place in all of them. It was only in the first, containing the pure blood, that the serum separated colourless; in all the rest it had a red tinge. In the first vessel, also, the serum was fully more abundant in proportion to the entire quantity, than in any of the rest; and among the latter, the proportional quantity was not regular. In every instance the coagulum was at first equal in volume to the whole liquid, so that in the largest vessel it was obviously diffused over seven times its natural space. The subsequent contraction was much greater in the first cup than in any of the rest. By cautiously immersing in water the vessels containing the larger coagula, the red colour was gradually washed out, the coagulum still retaining its original shape, although contracted in size. The decoloration was the more easy, the more diluted the blood.

I would remark, with respect to this experiment, in the first place, that it is quite impossible to deprive of its colour the natural coagulum of blood, without breaking it down; only the surface is blanched, but the internal parts retain their original colour unchanged, the clot being apparently quite impermeable by water. Now, if the coagulum be broken down, it is converted into a liquid, which we have spoken of above, under the name of *the liquified coagulum*. Hence it is, that in obtaining fibrin from the blood in the ordinary way, the greater part of it runs off with the water, in the form of liquified coagulum, while only a few shreds are left behind. The easiest mode, therefore, of obtaining fibrin from the blood, is to dilute largely with water the blood as it flows from the arm, and after coagulation has taken place, to pour a stream of water cautiously over the coagulum, till it ceases to acquire a red tinge. I treated in this way a pint of blood, diluting it with six times its volume of water, and afterwards macerating for a fortnight, when the greater part of it remained behind, in the form of a filamentous mass, of an uniform pale flesh-colour.

My principal object, however, in detailing this experiment, was to remark, that the structure of the coagulum is rendered obvious by dilution, and that it is then seen to consist of filaments interlaced in all directions, so as to constitute a cellular tissue, such as that described above. It is in the cells of this tissue that the serum seems to be contained, when the coagulum is first formed, and afterwards, by the contraction of the filaments, it is forced out upon the surface of the coagulum. It is only in its greater density that the natural coagulum differs from those obtained by dilution, or by mixing together the membranous and sanguineous serum. In respect of structure, therefore, the latter may be considered as bearing to the natural coagulum the same relation that the cellular tissue bears to the membranes of the body, which have been shewn by Haller to consist essentially of a condensed cellular tissue.

I shall now relate some experiments

which were made previous to most of those already mentioned, but which I have postponed till now, because they appear to me to exhibit the same phenomena that are described above, but in a more complex form, and I preferred beginning with the most simple.

4. *Membranous serum, and liquid blood.*—I received some blood as it flowed from a vein in the arm, in a vessel containing a portion of the serum which I had just drawn off from a hydrocele. The blood became a little florid as it mingled with the serum, and when coagulation took place, nearly two-thirds of the coagulum consisted of buffy coat, as it is called, or inflammatory crust. In other words, the whole colouring matter of the blood was collected in the undermost third of the coagulum, while the two upper thirds contained no colouring matter. The line of separation between the pale and the red coagulum was perfectly well defined, as in cases where the buffy coat is observed as a symptom of disease. The pale coagulum had about the usual degree of firmness, but it had in colour less of the buffy tinge than is observed in inflammatory diseases. It had more of the colour of serum, and was not unlike the coating I have occasionally seen upon the coagulum of blood drawn in typhus fever. The vessel in which the blood was received being shallow, the whole depth of the coagulum was only about an inch. There was no inflammatory crust upon the rest of the blood drawn.

I have repeated this experiment frequently, and although it does not always succeed, it has, nevertheless, succeeded so often as to satisfy me that the formation of the pale coagulum, or buffy coat, does not depend on any accidental circumstances, but is really the effect of mingling membranaceous serum with liquid blood. The circumstances which cause this experiment to succeed in one case, and to fail in another, I have not been able to ascertain. I have seen the experiment succeed when the serum was far advanced in putrefaction; and I have seen the same serum produce the effect with the blood of one individual, and fail of producing it with the blood of another. I have seen membranous serum which did not coagulate when mixed with sanguineous serum, produce the buffy coat; and, on the other hand, I have seen membranous serum, which gave a coagulum with sanguineous serum, give no buffy coat with liquid blood. Most probably the success of the experiment depends upon certain conditions, both in the state of the serum, and in that of the blood. Several cases in which this experiment did not succeed, or only imperfectly, will be found below, under the head of miscellaneous experiments.

An experiment, which appears to me analogous to that last mentioned, consists in immersing in membranous serum a portion of the coagulum of blood, but without breaking it down. Upon standing, the coagulum becomes covered with a gelatinous crust, and from this point the colourless coagulum extends in filaments to the rest of the liquid.

5. *Oils and liquid blood.*—The first experiment which attracted my attention to the subject of this essay, consisted in mingling together oils and liquid blood. I received some blood as it flowed from the arm, in a cup containing some sweet oil. When the blood coagulated, I found that the upper part of the coagulum contained no red particles, or in other words, there was a buffy coat on the coagulum, while the rest of the blood drawn exhibited no such appearance. The same result was obtained when the oil was simply poured over the surface of the newly drawn blood. Oil of turpentine gave results exactly similar, but upon the whole, rather more striking. I was disposed to ascribe these results to the chemical action exerted by the oils upon the serum and colourless coagulum. I transcribe from my notes of these experiments, the following remark, although I have since seen reason to modify the opinion expressed in it. "These experiments probably indicate that the formation of the buffy coat in disease depends upon the blood containing some ingredient incapable of combining with the colouring matter, and which may possibly be of the nature of an oil."

6. *Miscellaneous experiments upon blood, serum, and other animal fluids.*

(These experiments being very numerous, and of a very miscellaneous character, the author does not think it necessary to publish them, more especially as most of them have little connexion with the argument which follows).

[To be continued.]

110, St. Vincent-street, Glasgow,
March, 1836.

CASE OF HYDROPHOBIA.

To the Editor of the Medical Gazette.

SIR,

HAVING lately witnessed a well marked case of hydrophobia, I beg leave to forward you the notes I took upon the occasion, and to enable you to record the fatal termination of another example of this *opprobrium medicorum*.

I am, sir,
Your obedient servant,
WILLIAM ENGLAND, M.D.

Wisbech, March 31, 1836.

February 29th.—Elizabeth Rollin, æt. 37, unmarried, an industrious woman keeping a small shop in the village of Emneth, of spare habit, and of vigorous mind, seven weeks since was bitten in the left arm and ankle by a dog supposed to be mad. The arm was a good deal lacerated; but the wound cicatrized in three weeks. The teeth of the dog penetrated in six places, near the outer and inner malleolus. The skin in one place was abraded to the breadth of a sixpence; the other five were contused wounds. The ankle was five weeks before it healed.

Mr. Robert Wales, surgeon, of this town, was sent for between 10 and 11 A.M. She then complained of having had shivering and uneasiness for two days; the last two nights were passed without sleep; difficult deglutition, particularly of liquids; severe spasms of the pharynx; pulse about 85, hurried: complains of thirst and dryness of mouth; oppressed respiration; no pain. Was ordered to take immediately—

Hydrarg. Submur. gr. x.; Ext. Belladonnæ, gr. iij.

At 1 P.M. I was requested to see her. The following were her symptoms:—Countenance expressive of great anxiety, or "malaise;" mental powers vigorous, though she is somewhat alarmed by having been bitten, and the imprudent observations of her neighbours. Skin hotter than natural; respiratory movements very irregular; sometimes as slow as fourteen inspirations in the minute. Complains of general chilliness. No pain of head, chest, or abdomen; much oppression, or weight, referred to the lower third of the sternum; has constant thirst; salivary secretion not increased in quantity; tongue milky-white, not furred; pulse 128; visible pulsation of the carotid arteries; is desirous of drinking, but is unable to swallow fluids, even common water. On attempting to drink, she is seized with violent spasms of the pharynx, followed by very loud sonorous expirations; is able to swallow a small quantity of sago, not very moist. On the extremities of her fingers being immersed in tepid water, the spasms of the pharynx came on in a more aggravated degree; her bowels have been constipated for two days.

On inspecting the left fore-arm, a cicatrix, not indurated, was discovered over the centre of the extensor muscles: this cicatrix was about $1\frac{1}{4}$ inch in length. The left ankle presented on the outer and inner side the cicatrices of six teeth-wounds, apparently all contused except one, where the skin had been lacerated: these cicatrices were hard and elevated.

Sumat Olei Crotonis, gtt. ij. 2dis horis.

10, P.M.—Spasms as before, on attempting to drink water; pulse about 82; bowels not relieved.

Repetatur Oleum Crotonis, omni semihora. Morphiæ, gr. ij 2dis horis.

To have the vapour and hot-air bath.

March 1st, 7 A.M.—Spasms of the pharynx increased in violence and duration; has passed a restless night, without sleep, and without being able to swallow but a little bread sopped in tea; bowels relieved three times; alvine evacuations dark; unable to lie down in bed, from fear of suffocation; pulse intermitting, alternately slow and very rapid; secretion of saliva more than natural; tongue of the same milky appearance. She is disposed to be cheerful and jocose during the absence of spasm, and feels hungry, without the capability of swallowing food. After a violent paroxysm, she complained of being choaked, and begged for water: on tepid water being offered, she seized the cup, but could not get it nearer her lips than two or three inches. She then asked for cold water, and making a violent effort to take it, succeeded in dashing a small quantity into her mouth, and thought she had swallowed a few drops. Respiration irregular, and much oppressed; pupils dilated; says she would be quite well if she could swallow; the warm bath not used, from the efforts she

made to resist it; during the night there has been a great mucous discharge from the nostrils: a most violent paroxysm of pharyngeal spasm came on, that lasted, with little intermission, during three quarters of an hour; it appeared to be brought on by the sudden descent of a large volume of smoke from the chimney into the apartment. Upon the cessation of this paroxysm, she was prevailed upon to be bled,—about sixteen ounces of blood were abstracted, when approaching syncope came on: the venesection seemed to afford some relief.

Repet. Oleum Crotonis et Morphia.

4 P.M.—Has not been able to take the pills of morphia; spasms much the same; pulse smaller and quicker; violent mania has come on. Is impressed with the idea that she would have been relieved if drawn through salt water; abused her medical attendants for not acquainting her with the nature of her disease, and continually exclaimed to be left to die alone. Would not allow any person to approach her; the opening of a door, or the movement of persons in the room producing a current of air, brings on the recurrence of spasms. Skin is become cold; pupils much dilated; excessive secretion of saliva keeps running from her mouth: the mucous discharge from nostrils continues. Frequently attempts to spit upon persons near her; has constant inclination to vomit. The spasmodic and maniacal symptoms increased in severity, with scarcely any intermission, and she continued sitting in a semi-recumbent posture till half past 7 P.M., when, during a paroxysm not more violent than many others, she became pulseless, fell back in a state of asphyxia, and expired.

Upon subsequent inquiry of her relatives, it was ascertained, that immediately after being bitten by the dog, the wound was washed with saltpetre and water, a neighbouring blacksmith had sewed it up, and, contrary to her wishes, she had been advised by her brother to drink a herb drink prepared by a village quack, and believed to be a certain preventive of rabies; of this potion she took a large bottle. A few days before the disease developed itself, her brother persuaded her to take some more of the drink; she laughed at the idea, said she was in good health, and refused to do so.

The dog which wounded the unfortunate woman subsequently bit two other dogs; one of them died perfectly rabid. Several sheep were also bitten on the neighbouring farms, and died with similar symptoms, in a modified degree.

The friends of Eliz. Rollin would not allow a post-mortem examination of her body.

ON THE

MOTIONS AND SOUNDS OF THE HEART;

CHIEFLY WITH REFERENCE TO SOME OF DR. COWAN'S VIEWS.

To the Editor of the Medical Gazette.

SIR,

IN no way can such a medical journal as that of which you are the able conductor, be so useful to the medical world, as by affording a ready and willing channel for the communication to the mass of the profession, of the result of experience in medicine, and experiment and observation in physiology. Your pages teem with the valuable labours of many men at the head of the different branches of medicine, and of no subject have you had a larger share than of the opinions and discussions upon the theory of the heart's action. Of the numerous varied and vague hypotheses advanced, the many have had but an ephemeral existence, and have been refuted or abandoned as soon as formed; but some are still left, opposite to each other as the poles, and yet each finding strenuous and able supporters amongst our professed physiologists.

My attention was directed to this subject, by some observations in last week's Gazette, by Dr. Cowan, of Bath; and I would, if not taking up too much space, say a few words in opposition to his views.

I know not any thing more indispensable in public writing, than that it should be intelligible to the understanding of those who are likely to peruse it: that by far the greater part of Dr. Cowan's observations are perfectly unintelligible to me, I must confess, and I would willingly ascribe it to my own dulness, rather than any want of perspicuity or consistency in Dr. C.'s relation, were it not that there are some parts that I will defy the most subtle of his readers to understand, or even himself to explain; as for instance, when, insisting upon the active elevation of

the mitral valves, he says, "The valves are, therefore, *muscularly tightened* from the first moment of ventricular contraction; they are every where raised from the muscular parietes, on which they passively repose during the systole, and their functions, &c."

But it will be more fair, and quite as easy, to combat his arguments, and to disprove his deductions, as to point out instances of verbosity or inconsistency, and I will proceed at once *ad argumentum.*

Dr. C. lays particular stress upon a fancied division of the left ventricle of the heart into two distinct portions, acting, as it seems, in some measure, independent of each other. I say fancied, because I cannot see the truth of this arbitrary arrangement; but even allowing that it does exist, it will not avail, for the only deduction that Dr. C. draws from it will not bear the test of a moment's scrutiny. He says, that upon the passage of the blood from the auricle, these two portions dilate successively, and that consequently there cannot be the conflicting currents and collisions of the particles of the fluid, ascribed by some as the cause of sound, but that the flow of blood, instead of being sudden, must take place "*gradually.*" Now, suppose that the heart acts sixty times in a minute, or once in a second, (far below the mark) and that two ounces of blood (the acknowledged quantity) are received and transmitted at each time, it is well known that the period of the action of the ventricle is in this ratio,—half the time for the contraction, one quarter for dilatation, and one quarter for repose. Thus two ounces of blood pass in a quarter of a second into the ventricle; and yet Dr. C. says that it is done "*gradually:*" and when we consider this fact, with the nature and size of the auriculo-ventricular opening, there will be no difficulty in allowing that there must be conflicting currents and collisions of the fluids.

Having, I think, shewn, that Dr. C.'s arguments, to prove Dr. Hope and others wrong, are not very valid, I will examine into the value of Dr. C.'s own opinion as to the cause of sound, in ascribing it to muscular contraction. He says, it is known that muscles do produce sound during their contraction; I do not know any such thing, nor do I believe it. I could never detect any sound produced by the most energetic action of the most powerful muscles, though I have often tried the experiment. I deny that any reliance can be placed on the opinion of the older writers, as instanced by Dr. C. The only one that would weigh with me would be Laennec. But Dr. C. takes him too literally; he did not mean that the sound was produced by the actual muscular action, but merely in general by the ventricular systole, and, in my opinion, he did not attempt to explain the immediate or proximate cause of the acoustic phenomenon.

Dr. C., in particularly directing attention "to the physical conformation of the cardiac cavities, as well as their valvular appendages,—and a strict association of these with the hydrostatic condition of the circulation," seems to have entirely lost sight of the valuable signs that are to be drawn from a consideration of pathology. I have heard it said, that no reliance can be placed on physiological deductions drawn from pathological evidence; but in many organs of the body, and especially in the heart, we can arrive at no correct conclusion without it. The heart, when diseased, is frequently materially altered in the extent of its cavities, and in the thickness of their muscular parietes. In concentric hypertrophy, *i. e.* with diminution of the cavity of the ventricle, and where the heart beats with twice the energy and power that it does in health, there is a remarkable diminution of the sound; now, if muscular action were the cause of the sound, when that action was increased in a very marked degree, there must be a proportionate increase of sound; but the very reverse is the case. When the cavity is increased in size, with such a distension of the walls that they cannot act very forcibly, according to Dr. Cowan's theory there should be a diminution of sound, because the energy or power of muscular action is lessened: but the very opposite is the fact, and the increase of the sound is in direct ratio with the increase of the cavity and attenuation of the walls, up to a certain point, when the phenomena are much altered; the cavity is enormous, the power slight, and the sound scarcely audible. This I can easily explain consistently with my own view of the case, for when the enlargement is excessive, the mitral valves cannot close, the ventricle can make but little effort to expel its contents, its action is

changed into a feeble vibrating, and the blood, instead of being forcibly compressed, is merely carried on by the *vis-a-tergo*, and pursues the even tenor of its way through the cavities of the heart, this organ acting as only an obstruction, and not as a powerful assistant or principal in the circulation. These are facts well known to pathologists, and, if true, must completely overturn the theory that Dr. C. advocates; for, if the sound be produced by the contraction of the muscular fibres, it must be augmented or lessened by the increase or diminution of that action; whereas, in fact, the very reverse is the case.

But, even supposing that the first sound could be produced by this action, to what could be ascribed the second sound? Not to the contraction of the auricle, for that is an almost passive organ, and utterly incapable of producing a sound, surpassing the first in clearness though not in duration. And, moreover, if my memory serves me right, Dr. Corrigan found, in an experiment which he performed, that both sounds were produced after the auricle had ceased to act. Dr. C. has wisely got over the difficulty by not attempting to explain the particular cause of each sound, but has written so generally, that through his whole paper I cannot find to which sound he is alluding.

Dr. C. says, that the motion of a fluid against a solid cannot cause sound unless there be some air present, or, at least, if the fluid and solid be always in perfect juxta-position; his sense of hearing must be very comfortably dull, if he can sleep with his head resting on the bottom of a boat when there is much swell upon the water.

Trusting that I have not been too prolix, and that you will, if convenient, insert these observations in your journal,

I am, sir,
Your obedient servant,
Robert Blyth.

7, Charterhouse Square,
March 29th, 1836.

He that hath not been versed in the operations of the Art, nor a frequent auditor of the Lectures of such as are learned therein, and sets forth himself for a brave Surgeon, for that he hath read much,—he is either much deceived, or impudent.—*Ambrose Paré.*

THE NITRO-MURIATIC ACID BATH.

To the Editor of the Medical Gazette.

Sir,

Under the above head, an extract, from Hufeland's Journal, having appeared in your last number, shewing the efficacy of the nitro-muriatic acid bath, as employed by M. Schlesinger, it may not be uninteresting to some of your readers to lay before them an account of the same remedy, which was put into my hands by the projector, the late Dr. Scot, twenty years ago, at which period, having returned from India, he made known his experience in the treatment of obstinate hepatic affections, by this process, as a substitute for mercury. I am not aware that Dr. Scot ever published any thing on the subject, with the exception of the printed document I forward to you; and as this bears, at the end of the sheet, his prescription for the ingredients, *in his own hand writing*, (which, in point of proportion, are so nearly similar to the one alluded to), I trust you will advocate the "Palmam qui meruit ferat," by the insertion of Dr. Scot's paper, with the date.

I have the honour to be, sir,
Your obedient humble servant,
A. R. Sutherland.

1, Parliament Street,
30th March, 1836.

Dr. Scot's Account of the Nitro-Muriatic Acid Bath.

As I am often applied to for the method of using this bath, and as, in spite of all the trouble I have taken, I frequently find that it is very badly managed, I have found it necessary to draw out, for the use of my friends, a short account of my mode of proceeding.

I have, at different times, used different proportions of the acids, but of late have mixed them in equal parts; but I propose in future to employ three parts of the muriatic to two of the nitric acid. This is the most powerful proportion that I have yet discovered.

On the mixture of the acids, a great volume of elastic gas is disengaged, which is extremely offensive, and which soon pervades every part of a house. In order to avoid this, the acids should be diluted with about twice their bulk of water. Put, then, the necessary quantity of water into a bottle or other glass vessel, and pour on

it the acids, one after the other. This may be kept for use in common wine-bottles. It is, however, generally right to have this diluted mixture of the acids made by the apothecaries or chemists.

I have frequently, in India, exposed the whole surface of the body below the head to the action of this acid bath. I have, however, found in this country, that it generally sufficient to *bathe the legs to the knees, or a little above them.* Get a wooden tub, just large enough to hold the feet at its bottom, and at top to contain the legs or knees. The bottom of such a tub should be wider than its top, for it is desirable, that in addition to the feet and legs, it should hold as little fluid as possible. If larger, the bath will be less easily warmed, and the expenditure of acid will be greater. To this tub a quart bottlefull of the before-mentioned acid mixture may be sufficient. This rule, however, is not enough, for the acids vary much in strength at different times, and the skins of people are affected differently. The taste affords another method of judging. The bath should be about as sour as very weak vinegar, and it should perhaps prick the skin slightly, after being exposed to it for half an hour. If stronger than this, it will produce troublesome pimples, and give a yellow colour to the nails and the skin of the feet, all of which should be avoided. A common wash-hand bason answers very well for bathing the feet, and sponging the legs at the same time.

The bath should be made agreeably warm by pouring into it a sufficient quantity of boiling water. In order to warm it, I have commonly thrown out about a third or fourth of it, replacing the loss by boiling water and a little fresh acid. This is perhaps the best method; but I have at times warmed it in glass or well glazed vessels of porcelain, put near the fire, or even over it. This should be done often, for it probably injures the bath.

"*I am not now convinced that a particle of* acid *enters the system! The effects arise, I suspect, from chlorine alone.*"

I was long anxious to procure a substitute for mercury, and for many purposes I found it at last in the nitro-muriatic acid bath. I have already in London seen enough of it to conclude, that it is not less efficacious than in India, and that it is capable of relieving, or of curing, a great range of disease; nor do these recent observations rest on my authority alone. If I can overcome the unwillingness of the medical world to try so new a remedy (and I cannot charge them with unreasonable scepticism in such a case), a confirmation of what I have asserted will appear in time from many quarters.

I shall only take notice at present, for it is particularly necessary, of a class of derangements which are very common. They are called *bilious*, and arise from the biliary secretions being too abundant, deficient, or depraved. Hence are produced disorders of the stomach, giddiness, feverish heat, and pain of the head, restless nights, cramp, melancholy, and many of those unhappy feelings to which the term nervous has been applied. In such cases, let the patient sit in the tepid nitro-muriatic bath for the legs, half an hour or less, according to circumstances, every night, or every second night. With some of these biliously disposed people, the first bath, and in a few hours, produces decided effects. It purges, gives rise to the expulsion of dark-coloured fæces or bright coloured bile, or bile of a brown, a green, or black colour, like tar mixed with oil. The pulse in time becomes quicker than natural, and a degree of restlessness takes place. These effects may be kept up for a number of days. They, however, are often much longer in appearing. Where the bile is deficient in quantity, the effects of the bath are only known by the fæces returning by degrees to their natural colour, and by a gradual improvement of the health. With people disposed to bile, it is necessary to keep the bowels very open during the use of the bath; for one of its effects, as I have said, and on which much of its beneficial tendency depends, is to produce a flow of bile into the intestinal canal. The immediate consequence of this is a feeling of being bilious, such as head-ache, giddiness, &c. &c. which should be obviated by laxatives. Those inconvenient effects of the bath arise from the very powers which enable it to correct some depraved conditions of the stomach and biliary organs. Although this bath, with little disturbance, produces many happy effects, let it not be supposed that delicate, or even strong people, suffer no temporary inconvenience. Let it always on the contrary be recollected, that the advantages produced by it can never be fully appreciated until the patient has given up the use of it for a considerable time. Even those who feel no very sensible effects from it at the moment, generally, in the end, find their health improved.

The great remedy at present for bile is calomel, or mercury in some form; but this it is necessary after a time to repeat. The very same thing is true of the bath. When the bilious feelings return, it must be repeated. Patients must themselves discover how long they can go on without its use, and when they return to it, two or three bathings of the legs, or washing the hands and arms for a few minutes with the nitro-muriatic liquor, or sponging the

body more largely, will generally be found to bring relief. The periods of health gradually become longer and longer, till a complete recovery of it is effected. If the bath were used cold, it would produce the very same effects as when warm; but in this climate it is certainly better and more agreeable to employ it tepid. Sponging the body with it has the same effects with bathing in it. For this purpose, put some tepid water into a bason with a proper portion of nitro-muriatic acid, and with a sponge moisten the thighs, legs, and abdomen, for ten or fifteen minutes daily; or these parts may be sponged alternately. With delicate people and those who are very sensible to this remedy, it is sufficient to put one hand among the diluted nitro-muriatic acid for a few minutes. Washing both hands with it and both arms for a few minutes daily, will in a short time be found sufficient to affect some bilious people, and to as high a degree as is prudent.

This remedy does occasionally open the bowels a good deal; but such an effect is not to be depended on, although its tendency in the end is to correct a disposition to constipation. The general error is that of making the nitro-muriatic liquor for sponging or bathing by much too acid.

London, Nov. 9, 1816.

R Aq. Fontan. ℥v.; Adde. Acid. Muriatic. ʒiij.; Acid. Nitric. ʒij. M.

Of this acid I put an ounce to each quart of tepid water for sponging or bathing.

VACCINATION IN THE EARLY MONTHS OF INFANCY.

To the Editor of the Medical Gazette.

Sir,

In your journal for April 2d, Mr. Aikin has written some observations on vaccination, wherein he considers the opinion I advanced, and supported by examples, on the influence of vaccine matter during the period of lactation, as fraught with danger. He says, "I hardly know any opinion that would prove a greater obstacle to the diffusion of the blessings of vaccination, than that of its inexpediency during the first nine months of infant life." Probably I erred in specifying the period of nine months; but from the mass of *facts* which have been presented to me on the subject, I still think it well to adhere to the principle as a general rule. From this it is not to be inferred that we are never to vaccinate a child under nine months old; circumstances such as Mr. Aikin has mentioned, as well as others, may frequently arise, so as to induce a medical man to make exceptions to this rule.

Since I first published the opinion as an observation, or recommendation, in the Medical Gazette for June 13, 1835, I see a most able account, delivered by Dr. Murray, at the South African Literary Institution, has been inserted in your journal for August 1, 1835, in which my ideas are fully borne out; it is a statement worthy the attention of all who feel with me how important it is to establish the great blessing of vaccination upon a right foundation.

Knowing Mr. Aikin's great experience on the subject, for self-justification I shall beg to make a few short quotations from Dr. Murray's paper; he says, "I have become impressed with the idea that vaccination in very early infancy is probably a principal cause of its failure, from reflecting upon the known insusceptibility of the infantile constitution to contagion in general, and from having had occasion to observe some very marked instances of its insusceptibility to scarlatina during the prevalence of that disease here in 1830, at which period, although children were chiefly the subjects of its attack, young infants generally enjoyed the privilege of exemption from it, as if their system were insusceptible of the morbific effect of its contagion. Dr. Underwood, who wrote specially on the diseases of children, states, that although the small-pox is a complaint so incident to early life, that comparatively few children living to the age of eight or ten years are found to escape it, yet it is not so readily communicated in the state of early infancy as hath been generally imagined, unless by immediate infection—*i. e.* by inoculation. 'Every one,' he observes, 'knows how very few infants he has heard of having received the small-pox naturally, though fewer of those are inoculated than of children above a year old; and this exemption from the natural small-pox does not seem to arise from their not being exposed to the ordinary means of contagion, especially among the lower and middling ranks of people, who form the bulk of mankind: the poor furnish frequent instances of the truth of this observation. I have attended where chil-

dren were born in an air saturated, as it were, with the miasm of this disease, and even lying continually in a cradle in which another child had died a few days before, and who have, nevertheless, escaped the disease, and sometimes when they have slept together in the same bed with one loaded with it.'"

Relative to the tabular account of deaths from small-pox, for the years from 1768 to 1774, as collected from the register of the collegiate church at Manchester, and recorded in the fifth volume of the Medical Observations and Inquiries, Dr. Percival observes, that from the said document it may be concluded that small-pox rarely occurs to children in the early part of infancy; experience showing that they are not much predisposed to receive it; and this conclusion is confirmed by Mr. Aikin, in his account of the variolous epidemic which raged with great violence in the town of Warrington, in 1773, as well as by the experience of Dr. Munro, who informs us, in his work on Inoculation, "that of twelve infants, whom he inoculated within a fortnight of their birth, not one had the variolous eruption." Mr. T. K. Deane, the secretary of the Cape Vaccine Institution, in answer to some inquiries on the subject, says—"With regard to persons who have been vaccinated here in infancy, and afterwards exposed to variolous contagion, a number are reported to have taken small-pox when they have gone to Europe for education, &c., but to have had it in a mild degree. Of these, I personally know eight, and I have heard of several others who became attacked in a similar way on going to India; but of those who were above four years of age when vaccinated, in 1803, when the cow-pox virus was first introduced into this colony, and who have subsequently gone to Europe, &c. not one has ever become affected with small-pox, as far as I know, and the number that I have ascertained to have been put to this proof is sixty-one: and one of them is a physician, who had just returned from Europe when the small-pox broke out here in 1812, and who was placed in charge of one of the Small-pox hospitals then established in Cape Town." I would also mention, says Dr. Murray, that when small-pox made its appearance in 1812, fifty-four government slaves were revaccinated here, as a precautionary measure, although they had all been subjected to the operation the first time the virus was introduced, in 1803, when they had already attained the age of puberty; and in no one instance did the second vaccination take effect, nor did any of them become affected with small-pox, although they were, on more than one occasion, exposed to its contagion." Dr. Murray thus concludes:—"According to my present opinion upon the subject, I would recommend vaccination to be deferred in infants till the fifth or sixth month."

Much more might be adduced, but I fear I have already trespassed at too great a length on your pages.

I remain,
Yours most respectfully,
JOHN GRANTHAM.

Crayford, Kent,
April 6, 1836.

SOME

MEDICO-LEGAL CASES OF RUPTURE OF THE BLADDER,

FROM BLOWS ON THE LOWER BELLY.

THE last number of the *Annales d'Hygiène et de Médecine Legale* (No. xxix. Jan. 1836) contains the following case:—

Two men having quarrelled in a Café, one of them seized the other by the hair of the head, shook him violently, planted a blow on the belly with his knee, and then threw him on the ground, where he kicked him in the same part of the body. The beaten man was lifted up, carried to bed, and died at the end of seven days. A medico-legal inspection of the body was ordered by the authorities, and MM. P. Guersent and Denis were entrusted with the examination. Their report contains many minute particulars; but the following may be considered as including all the chief points of importance.

The deceased was between 30 and 40 years of age, strongly made, his stature 5 feet, 6 or 7 inches (French). No trace of bruises about the face or head. The jaws locked. A large quantity of a dark red liquid flowing from the mouth. Cadaveric lividities on the anterior of the chest, also on the back part of the body (the deceased having died about twenty-four hours before inspec-

tion). Marks of a blister and of abundance of leeches on the hypogastric region. The abdomen distended, evidently containing fluid effused. Two slight excoriations about three inches to the right of the navel; another below the right inguinal ring; another in the right groin; and, finally, a fifth on the anterior and upper part of the left thigh, a little below Poupart's ligament. Cadaveric stiffness very considerable in the lower extremities.

No morbid appearances were found about the brain or its membranes; nor was there any thing worthy of special notice observed in the chest, unless, perhaps, that the lungs were gorged with black blood. In the bronchia and trachea was contained some of the same sort of liquid as issued from the mouth.

On opening the abdomen, a large quantity of sanguineous fluid issued forth, having an ammoniacal odour. The exterior of the stomach and intestines of a brownish colour, studded with red patches. Adhesions and false membranes among the intestines belonging to the lesser pelvis; particularly about the parts in connexion with the bladder, the cæcum, and the bowels in the neighbourhood of the right iliac fossa. The peritoneum much inflamed throughout, especially where the adhesions and membranes were formed. In the posterior and upper part of the bladder a vertical laceration was found, to the extent of about two inches. The paries was divided through and through, only in the lower half of the rupture; the upper half not involving the mucous membrane. The lips of the laceration were indented, or notched, and covered with a kind of false membrane; their vicinity was ecchymosed. The mucous membrane lining the interior of the bladder swollen, inflamed, and the inflammation limited to the neck of the organ. Stomach and intestines contain much greyish liquid; gall-bladder filled with blackish bile; liver, spleen, and other viscera, healthy.

The muscles of the abdomen corresponding to the hypogastric and umbilical regions examined with the greatest attention, layer by layer, did not present the least appearance of contusion. The excoriation already mentioned, examined in like manner, proved to be altogether confined to the surface.

"From all which appearances we infer, and have no hesitation to declare, that death was caused by rupture of the bladder; owing to which the urine escaped into the abdominal cavity, when it became a fatal source of inflammation, bidding defiance to all medical aid. We further assert that we have reason to believe the rupture originated in external violence inflicted on the hypogastric region *.

"Should it seem surprising to any one that a lesion so considerable could be produced in the bladder, without the parts in front of it being in the least contused, we can only say that it is perfectly *possible* — especially if the bladder were distended with fluid at the time of the infliction of the injury. The annals of surgery contain examples of the kind; and we beg to add that one of us witnessed the autopsy of a soldier who died in forty-eight hours after receiving the kick of a horse in the bottom of the belly; yet, though there was present a rupture of the small intestine, there was not the least mark of violence on the exterior of the abdomen."

In consequence of this *rapport*, proceedings were taken against the Sieur W., the person who had beaten and kicked the deceased. The indictment was for voluntary homicide; containing also a count for assault and wounds. The prisoner was found *guilty* on the latter count only, and was sentenced to 15 months' imprisonment, with damages 100 fr.

We shall now present the reader with a brief account of another case of ruptured bladder, very similar in many respects to the preceding, which occurred recently in this country:—

William Eccles was indicted, at Lancaster (March 28, 1836), for feloniously killing and slaying one James Hull, on the 29th November, 1835. The prisoner having been drinking, met Hull coming against him in the open road. Eccles desired Hull to "stand back;" upon which the latter remonstrated, and said that the road was wide enough for both. The prisoner then immediately *punned* (kicked) the deceased in the lower part of the belly, with a heavy iron-shod

* This inference must be derived from the circumstantial evidence; for there is nothing in the actual appearances of the body, as described, to warrant it. The reporters, indeed, endeavour to reconcile the fact of the rupture with the absence of external marks of injury; but they do not show that it might not have arisen from internal causes. —Ed. Gaz.

clog which he wore. Deceased became enraged with this brutal attack upon him, and both parties stripped to fight; but before they began, Hull tried to make water, but could not. He turned sick, said he was very ill, could not fight, and desired to go home. Having been supported for about two hundred yards with difficulty, he was unable to proceed further, and went down on his knees. A wheelbarrow was procured, in which he was placed, but the motion occasioned him so much pain that he was unable to proceed in that manner. Another mode of conveyance was therefore resorted to, and he was carried home in a chair. A surgeon was sent for, who administered some things, but the man died on the Friday following. The assault took place on the previous Sunday; so that death ensued on the fifth day. A *post-mortem* examination having been instituted, no mark of any external injury could be discovered, but the bladder was found ruptured; and this rupture, according to the medical evidence, was the proximate cause of the man's death. Two medical men testified to this fact. On their cross-examination, it was attempted to be shown, by counsel for the defence, that the rupture might have been occasioned by distension, from want of an ordinary discharge after much drinking, and that such was the most usual cause of that misfortune.

Lord Denman, in summing up the evidence for the jury, observed, that if the rupture was occasioned in the manner suggested by the defence, it was very extraordinary that it should happen at a time immediately after a violent kick had been inflicted on the part; though it was probable that the distension of the organ might have rendered the blow more dangerous. After retiring a short time, the jury returned a verdict of *guilty*, and the prisoner was sentenced to a year's imprisonment, with hard labour, in Lancaster Castle.

In the fourteenth volume of this journal will be found the particulars of another case of ruptured bladder, which was treated by M. Dupuytren. That eminent surgeon entertained hopes that nature would have effectually repaired the injury, by establishing a new reservoir for the urine; and was satisfied, from what he observed *post-mortem*, that this would have been the case, had not the patient caused his own death by gorging himself with improper food. Adhesions of cellular membrane were found, forming very firm bands, between the parietes of the abdomen, the lateral parts of the bladder, and the other viscera contained in the cavity of the lesser pelvis. Other bands formed a pouch behind the bladder, containing a turbid urinous fluid, mixed with flocculi of albumen. The bladder was torn to the extent of two inches at the postero-superior part, and in the direction of its greatest diameter.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'Alembert.

Elements of Medical Jurisprudence. By Alfred S. Taylor, F.L.S., Lecturer on Medical Jurisprudence and Chemistry in Guy's Hospital. Vol. I.

The subjects discussed in this volume are of high importance, and the ability of the author is conspicuous. He has diligently collected and methodically arranged a large stock of materials, bearing on some of the most interesting questions of legal medicine. Many still remain to be treated, which we shall be glad to find handled with the same zeal and talent in succeeding volumes.

We object to calling this work "Elements;" it consists of a series of disquisitions, or chapters of considerable length, chiefly on the various kinds of death, and on wounds; but there is nothing peculiarly elementary about it, at least as regards a systematic arrangement of the topics of forensic medicine. It should rather, we think, be entitled a collection of medico-legal essays.

In an introductory chapter, drawn up with much care, the author takes a comprehensive view of the objects and advantages of medical jurisprudence; its absolute necessity as a special branch of medical education; also the importance of a competent knowledge of it to persons of the legal profession. He shews the advantages arising to the state from its proper cultivation; and, on the other hand, the mischiefs resulting from its neglect. Of the latter he gives an apposite example:—

"Within a very recent period, out of six trials for homicide by poisoning and

cutting and maiming, which occurred in different parts of England, five ended in acquittals, because, as the judges observed in summing up the evidence, the opinions of the medical witnesses were of too speculative a character, and too conflicting with each other, to justify the finding of a verdict of guilty."

This want of steadiness and consistency on the part of professional witnesses, when called to give evidence in courts of justice, Mr. Taylor considers as mainly owing to the neglect of the parties—their gross deficiency, in short, in medico-legal acquirements. It is but too often forgotten that the gentlemen of the bar "constantly pursue a systematic course of examination, and generally succeed in obtaining verdicts for their clients, by drawing contradictory statements from the mouths of the professional witnesses." The strange oversight of the College of Surgeons, in so long omitting to introduce forensic medicine into the curriculum for their diploma, is very properly exposed by the author: we are sorry he did not mention that the College of Physicians has got the start of them in this respect—*medicina forensis*, as well as *practica*, being included in the new course of discipline required for the license.

In treating the subject of asphyxia, we are inclined to think our author needlessly diffuse. Were his volume professedly physiological, it would be very well and very proper to enter into the merits of the respective theories of Bichat, Legallois, Goodwyn, Kay, &c.; but essentially practical as it is, or ought to be, the more briefly, consistently with clearness, theory could be disposed of, the better. We like the manner, notwithstanding, in which Mr. Taylor acquits himself of his difficult task; and we will present the reader with what he says towards the conclusion.

"From all that has been previously stated, it appears to me we are justified in concluding, that if, in the state of asphyxia, venous blood possess any power of nourishing or stimulating the nervous system, this power has not been shewn to exist in it; at least this must be our conclusion so far as concerns man, to whom, be it remembered, our observations are now chiefly directed. According to Dr. Kay, the cerebral disturbance arises partly from the diminution in the quantity of blood circulated, and partly from the asphyxiated blood being less capable of maintaining the organic motions of the nervous system. He admits that were this fluid to circulate freely through the brain, its functions would ere long be suspended from the want of stimulus and nourishment. Now we contend that the deficiency in the quantity of blood is not a cause, but a consequence, of the cessation of the functions of the nervous system; that the cerebral disturbance proceeds from the want of its usual stimulus to the brain, namely, the arterial fluid; and that this disturbance takes place on the moment that the venous blood reaches that organ. Life, therefore, according to this view, does not cease in asphyxia because the circulation is arrested in the lungs, but because the functions of the nervous system are destroyed; this destruction, as first explained by Bichat, being antecedent to the stoppage of the respiratory process."

That part of the chapter on real and apparent death, which describes the phenomena of *putrefaction*, is valuable, as containing a summary of the principal circumstances which always more or less modify that process; but we could have wished brevity had been more consulted in the previous part, where the vulgar signs are so largely discussed. The Hippocratic face, for example, might well have been abridged, or dispensed with, especially as Mr. Taylor did not go to the original for it; he borrows it from Foderé, who had an unhappy knack at exaggeration: the Strasburg professor introduced features into the moribund face, which the old Coan himself would scarcely have recognized. Foderé, besides, is often wrong in his quotations; and Mr. T. had done well had he omitted the reference in the present instance.

Death by drowning occupies a chapter full of excellent matter; the illustrations being derived from a variety of sources, chiefly modern and national. In fact, no book has hitherto appeared worthy of comparison with our author's in this respect, his cases in point being always appropriate, and calculated to produce conviction.

Having dispatched hanging, strangulation, and suffocation, in a chapter of no mean length,—the subject of those other causes of death, lightning, cold, starvation, and fire, are disposed of.

The following passage, concerning

the probable cause of death by *lightning*, we are tempted to extract:—

"Many attempts have been made to determine, by experiments with the battery, the precise mode in which electricity destroys life. Mr. Singer found, that a strong charge passed through the head, gave him the sensation of a universal blow, followed by a transient loss of memory and indistinctness of vision. Müncke states that he saw an instance, where a full-grown man, who had received in his arms and thorax the charge of a jar of not more than two square feet capacity, fell, and remained in a state of perfect insensibility for an hour; and he remarks, that the full charge of a jar, of ten square feet capacity, would probably suffice to cause instant death in an adult, if the shock were transmitted through the head. There is some difficulty in performing these experiments on animals, because the electric fluid very often disperses itself over the surface of the body, instead of traversing the interior; and, of course, in such a case, it is unattended with any particular effects. The results of such experiments, however, where they have succeeded, show that the chief influence of this agent is confined to the cerebro-spinal system. A charge passed through the head of a bird was found to destroy the functions of the optic nerve, and induce perfect blindness. If a moderately strong charge be passed down the spinal column of a person standing, there is commonly such a prostration of strength that he falls to the ground. If a charge be passed through the whole length of the body of an eel, the animal is instantly killed; but when only a part of the body receives it, the destruction of irritability is confined to that part.

"Such are the consequences of the passages of a current of electric fluid through the body: but the facts will scarcely allow us to form a conjecture as to the mode in which it causes death. That the nervous system is the part chiefly, if not solely, affected by it, can be hardly doubted; and when we say that it is by the shock, or violent impression thus produced, that life is extinguished, we advance as far as the present limits of our knowledge will allow us in attempting to explain its fatal operation on the body. How the electric fluid acts upon the molecules of the brain and nerves it is impossible for us to determine."

If our limits permitted we could select many other excellent passages: but we must be content with announcing that there are such, copiously interspersed through the volume. Viterbi's case, by the way, ought not to have been given as one illustrative of the effects of fatal abstinence: that worthy contrived to dispatch himself with arsenic; his story is now well known on the continent.

The sixth chapter commences the intricate subject of wounds, which is also continued in three succeeding chapters; and so the volume closes. We should not omit to notice, however, that the "legal relations of wounds" form an important termination to the present portion of the work.

In a second volume, Mr. Taylor informs us, he will treat of toxicology, fœticide, infanticide, and insanity. We can only say, that we shall greet his appearance, whenever he returns to us with fresh acquisitions, gathered in the medico-legal field: his present visit has given us much pleasure. We are satisfied that the work, when complete, will constitute an elaborate system, well adapted for being consulted with advantage by practitioners who desire to be thoroughly acquainted with the principles of legal medicine.

MEDICAL GAZETTE.

Saturday, April 9, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

RUMOURS ABOUT THE NEW UNIVERSITY.

As the time draws nigh when the Warburtonian budget will be opened—if, indeed, it will be opened this session at all—the appetite of speculation is more sharp set than ever, and great is the longing to find out what it contains. An *honourable* contemporary of ours made every effort, by fair means or foul,

to obtain a sight of the invoice, or bill of fare: he did not succeed, and thereupon waxed very wroth; but he has since prudently become more calm, seeing that his blustering did no good. For our part, we are content to abide the event, and patiently to see what the "heart of the mystery" means; for time will disclose all.

Meanwhile it is amusing to observe the proceedings of the expectants, and to mark the phases which their opinions undergo, according as they seem likely to be or not to be realized. The one-faculty people, as many as remain of that over-sanguine set, which made so much noise about two years ago, know not what to think of the so much talked of scheme of a metropolitan University; they are taken all aback at the idea that it is to be only a University after all, and that degrees in medicine only, not in surgery or pharmacy, are to be conferred in it. They see no signs of their tripartite Board, which was to work such wonders, and to astonish all Europe. They are silent, and shake their heads, but still seem to have a lurking hope that all is not to be despaired of, since Mr. Warburton has not yet declared his plan.

The more moderate party, that called for a University in London, in order that this metropolis should possess facilities which Edinburgh and Dublin have long enjoyed, are almost equally puzzled as to the issue of their anxious anticipations. They do not despair, indeed, of the result, but they doubt whether the scheme will be carried into effect as satisfactorily as they had fondly hoped. Rumours are afloat which, not without reason, give them uneasiness. The management, it is whispered, is to be placed in hands incompetent and obscure; and who would not grieve if this were to be the case, in a city the first in Europe, and where, if any where, those talents abound suited to throw a lustre on any great national undertaking? Must intriguing mediocrity, and an amiable amateurship in science, entitle certain parties to a seat at the council-board of an institution on the success of which the character of the country is in some measure staked? What a laughing-stock to our continental friends shall we afford, if the Metropolitan University of Great Britain turn out to be a job—a mere humbug! Well may the once sanguine advocates of the original project lament the frustration of their warmest wishes.

We have already noticed the reports which are abroad regarding the alleged intention of those who have a voice in the management, to exclude from the examining body all who belong to any hospital or medical school; in short, to hold disqualified all hospital physicians and lecturers, admitting only, as competent, those who are engaged in private practice, and have no connexion with the business of teaching. The downright absurdity of this design we took occasion to point out not long since; and it gives us some satisfaction to find, that one of our contemporaries—himself erewhile among the hottest of the so-called liberal party—expresses opinions on this subject as nearly as possible identical with our own. "Such an exclusion," says the Editor of the Medico-Chirurgical Review, in the number just published, "would be highly detrimental to the interests of science. The men thus proscribed are those who are best qualified to test the candidates in the minute elementary knowledge which alone such candidates can be expected to possess. The very circumstance of being engaged for years in extensive private practice, would incapacitate the most talented private practitioner for the task of examining minutely into the acquirements of the

candidates in anatomy, chemistry, botany, and other branches of elementary knowledge. If the examinations were conducted in public, or in the written documentary manner, no unfair play, personal jealousy or partiality, could possibly influence the acceptance or rejection of the candidate. . . . . It would be monstrous to exclude a man from *testing* elementary knowledge, because he is in the daily habit of *teaching* it in all its minutiæ!"

But this is not the only rock of offence with which the managers are about to do mischief to themselves and others: there is another; and one, it must be confessed, very outrageously offensive. We allude to the monopoly which, it is strongly rumoured, is about to be conferred on King's College and London University. Every candidate, it is said, who seeks honours in medicine from the University Board, will be required to bring with him, from either of the establishments just named, certain certificates of general education. Now both these establishments being at the same time medical schools, a monopoly, by this arrangement, is clearly secured to them. If students of medicine must attend a particular school for general purposes, where simultaneously they may obtain their professional education, that school is clearly marked out as exclusively the one suited to their object, and all others, by consequence, as naught, and to be eschewed. It is not possible that this unjust measure can be finally adopted: it is fraught with iniquity to so many parties, that it cannot fail to excite a strong, and we hope a successful, opposition. Why not allow a general preliminary education to be procured wherever it conveniently can—whether at Harrow, Westminster, Eton, or any of the metropolitan seminaries—when the amount and sufficiency of that education could be so readily tested by a suitable examination? But no; we fear there is no likelihood of gaining any thing by reasoning with the managers whom we have to deal with: the manner of dealing with them is by remonstrance and strong protest.

We have just said that a befitting general education might be procured any where: we would have no objection to its being wholly of home growth; but wherever this preliminary general knowledge is obtained, matters not, so as it is really obtained; for that can be fully ascertained by a proper examination. No certificate of the particular school or school-master need be insisted on. But we carry not this principle into our views of *professional* education: here there must be evidence of certain courses having been gone through—certain manipulations performed under competent guidance—certain hospital attendances properly complied with. The visionary, insane notions, of those who contend that certificates should be abjured altogether, is highly ludicrous, and would deserve to be treated only with ridicule, were there not reason to suspect that a dishonest motive of self-interest is at the bottom of their counsels. Abolish schools and hospitals, as places of education, and where will the candidates for diplomas qualify themselves for examination? In the grinder's workshop: and we rather suspect that the worthy grinders are at the root of this grand scheme of certificate abolition. We shall conclude these remarks with one other passage from the writer already cited: he thus describes the disadvantages and absurdities of the scheme. "We would ask these men how a student can be properly tested by an *examination* in anatomy, chemistry, surgery, and more especially in *clinical* knowledge, by such examination? It is utterly impossible. We grant, indeed, that examinations might be made much more efficient and search-

ing than they now are; but still they would be grossly imperfect, without the aid of other checks, which will be presently pointed out. A student may, by dint of hard study, and the aid of a *grinder,* be capable of describing the origin and insertion of every muscle, the ramification of every artery, and the distribution of every vein; and yet if taken into a dissecting-room, he might be scarcely capable of distinguishing the sciatic nerve from the sartorius muscle. He may be able, from books and grinding, to lay down the diagnosis, prognosis, and treatment, of every disease in Good's Nosology; and yet, if taken into the wards of an hospital, he might not be capable of distinguishing small pox from measles."

THE NEW COLLEGE COUNCIL.

In our list of the new Council of the College of Physicians, published last week, the name of Dr. Bright was introduced by mistake, and that of Dr. Seymour omitted. Thus corrected, the catalogue is as follows:—

Sir H. Halford, *Pres.*

Dr. Heberden.	Dr. Chambers.
Dr. Turner.	Dr. Elliotson.
Dr. Hue.	Dr. Watson.
Dr. Paris.	Dr. Seymour.
Dr. Macmichael.	Dr. Holland.
Dr. P. M. Latham.	Dr. Clendinning.

MURDEROUS QUACK PILLS.

We give, in a subsequent page, the horrible details of another case of fatal quackery. The quack delinquent, in this instance, was one of the "Hygeian" agents—an ignorant, impudent, lying vendor of Morison's pills, who dispatched his victim—a Captain Mackenzie, aged only 32, and in robust health — with the coolest deliberation. He was defended with all the ability of Sir Frederick Pollock, and Messrs. C. Phillips and Adolphus; and it is evident that the arch-quack Morison spared no expense to procure his acquittal. Yet he was found *guilty*, but recommended to mercy on the ground of his being merely the vendor—not the compounder of the pills. Why is not Morison himself, then, put in the dock? If these repeated verdicts do not open the eyes of the public, their case is deplorable; they are the doomed victims of the most infamous of mankind,—those who live by procuring the disease and death of their fellow men.

"RODERICK MACLEOD'S BREAD PILLS."

To the Editor of the Medical Gazette.

Sir,

Mr. Wakley, who devotes to slandering the humble individual who addresses you, all the time he can spare from his parliamentary duties, has honoured me, in the last number of his journal, with some especial abuse, on account of my supposed opposition to some scheme of his, called an "Anti-Medical Quackery Society," about which I know little, and care less, and concerning which I have never expressed any opinion at all. The jist of the article alluded to, consists in a charge against me of quackery, in having "practised under the garb of secrecy;" to which is added the enormity of "making use of Latin terms," and even of "mysterious signs," in writing my prescriptions. But probably these atrocities would not have brought down the virtuous indignation of Mr. Wakley with so heavy a hand, had I not (query "under the garb of *secrecy?*") printed a set of formulæ, among which was one for bread pills. Now, as the editor of the Lancet has frequently referred to this as something very disgraceful, I should have explained the circumstance in which it originated sooner, but that I had no copy of the document, and feared to quote it from memory. From this difficulty Mr. Wakley has fortunately relieved me, by the publication of the prescription, and as it was written nearly twenty years ago, I may be allowed to observe, that the care with which he has so long preserved it, and the use he has now made of it, form a striking commentary on the purity of his motives.

The history of "Roderick Macleod's formula for bread-crumb prescriptions," is simply this:—When I was appointed physician to the Westminster Dispen-

sary, Mr. Coman (then an old man) was the apothecary, and had been so since the establishment of the charity, in 1774. His faith in physic was as unbounded as the quantity of it which he administered: let the physicians or surgeons order what they might, he always added something of his own; by which he kept up a perpetual drain at once upon the constitutions of the patients and the funds of the Dispensary. Many expedients were tried, to break the old gentleman of this habit, but in vain; for he had long had the chief care of the patients himself, by which he had acquired a certain reputation among them, which he was anxious to maintain; and this could only be done by appearing to take a part in the management of their cases. At last I compromised the matter with him, and had a drawer assigned to "*Pilulæ ex Mica Panis;*" which he had permission to administer *pro re nata.* Many of the patients had got into the habit of taking medicine frequently during the day, and thought themselves neglected if the supply were much curtailed. This led to my occasionally giving the bread pills in addition to such efficient remedies as the cases required: and it was amusing to listen to the account given by some patients of the effects which those same pills produced, particularly, as might be expected, on nervous and fanciful persons. So far, probably, it will be thought that I had scarcely done any thing to justify Mr. Wakley's charge of employing the pills "as instruments of fraud and extortion." But, alas, the atrocity went further: at the time to which I allude, there were a considerable number of pupils at the Dispensary; at their request I made out a list of the formulæ chiefly used, and among the rest, that for the *pilulæ ex mica panis* was included, while a statement of their virtues was appended, in mock solemnity.—Here it is.

"PILULÆ EX MICA PANIS.

"℞. *Micæ Panis* ℥i.

"*Divide in pilulas* xii. *quarum una sumatur ter quotidie.*

"These pills are extremely useful in *convalescence* from almost all diseases, and *with due attention to diet and regimen* will frequently remove many obstinate complaints, such as hypochondriasis, hysteria, dyspepsia, and amenorrhœa. Some care, however, is required in their exhibition, as a considerable number of instances have occurred at the Westminster Dispensary, in which patients *have complained much of the severity of their effects!*"

Now this may have been but an indifferent joke, and I am not disposed to defend it on the score of taste. The proceeding, too, I admit, may have been a *young* one even in a physician of 23; but be it remembered, in extenuation of the imprudence, that the Lancet was not then in existence, and that the extent to which dishonesty and hatred are capable of stimulating detraction, wanted the illustrations it has since received.

Soon afterwards the old apothecary became superannuated, and was succeeded by Mr. Wade, a well-educated and intelligent man, with whose appointment the necessity for the bread-pills no longer existed; so that the drawer soon became empty, and never was replenished. Such is the whole history of this mighty affair,—such the foundation on which I have been accused of every infamy calculated to reflect disgrace on my professional character.

Allow me to add, that it is not my intention again to depart from the rule I have hitherto invariably followed, of leaving, unnoticed, the attacks upon me, which appear in almost every number of the Lancet; for I believe that the motives and character of the party from whom they proceed are so generally known, as to render any refutation superfluous—and, indeed, the above is the only charge which has had even the shadow of a foundation to rest upon. Mr. Wakley's present phrenzy—for to nothing less does it amount—has evidently been produced by certain recent castigations, emanating, however, from an abler pen than mine.—I am, sir,

Your obedient servant,

R. Macleod.

23, Henrietta-street, Cavendish-square,
April 6, 1836.

MECHANICAL PHILOSOPHY AS APPLIED TO MEDICINE.

Abstract of Lecture Second: as delivered at the Aldersgate School,

By Dr. Birkbeck.

Dr. Birkbeck began by observing, that obvious and easy as the practice of locomotion in the human subject might appear, it would be found, if minutely investigated, curious and complicated. The will directs a certain change of place, and

immediately an extensive apparatus is brought into action, and the purpose is accomplished. All this occurs, it must be observed, without the individual being at all aware of the muscles employed; nay, even, better perhaps, with perfect ignorance of the precise instruments required for effecting the action, than if it were attempted to produce the same effect anatomically. In the act of respiration it has been said that about one hundred muscles co-operate, yet no one can be supposed to direct the several movements. If it be alleged, that this is an instance of involuntary motion, and, therefore, is otherwise arranged, we may take, as an example, articulate utterance; the method by which the mind of the speaker is diffused through his audience; a procedure perfectly voluntary, and yet demanding the co-operation of a still greater number of muscles. It must at last be referred to some influence such as we term instinct, for imitation, in the full sense of the word, it cannot be; and we cannot, perhaps, give a better account of the matter, than is given by Milton, in the beautiful description by Adam, of the impulses and movements which followed the first dawning of conscious existence.

Dr. Birkbeck then proceeded to apply the statical and dynamical principles advanced in the preceding lecture, to the explanation of the position and motions of the body. He first considered several circumstances presented by the skeleton, the frame work or scaffolding, beginning with the head. He shewed that its configuration was adapted to protection: that as a firm, arched structure, it was admirably calculated to defend its important contents from injury by pressure. Besides it was shown that the flat portion of the temporal bones, with the two petrous portions, answered the purpose of a tie bearer in ordinary roofs; preventing especially the parietal bones, the sides of the dome, from expanding by pressure. The peculiar structure of the basis of the cranium was noticed; and the motion of the head on the atlas, exhibiting curvage of the first species, was particularly described. In speaking of the rotation of the head by means of the vertebra dentata, a mistake of the liberal and enlightened theologian, Dr. Paley, was pointed out. Between the atlas "and the bone next underneath it, there is (he says) a mechanism resembling a *tenon* and *mortice*." Now that this mechanism does not resemble a tenon and a mortice, was proved by exhibiting a piece of wood fitted into another piece, according to the meaning of the terms, as then explained. As a tenon is always fixed in mortice, and is a prism, it cannot with propriety be said, "when we turn the head round, we use the tenon and mortice which runs between the first bone of the neck and the second." The manner in which the pivot-hole for the tooth of the second vertebra is formed, and the effectual mode in which the spinal cord is preserved from pressure, were then displayed; and the admirable adjustments to a multitude of necessary, yet somewhat opposite purposes, in the construction of the spinal column—mechanism of the most consummate excellence—were detailed with considerable minuteness.

Several points of great interest were unavoidably passed over for want of time, in order to commence a description of the mechanical circumstances belonging to the extremities. The shoulder-joint, a ball and socket, having certain peculiarities, was first noticed, and then the construction of the elbow. Dr. Birkbeck attended particularly, in regard to this joint and that of the wrist, to the change of supination and pronation, effected by the mode in which the radius and ulna are respectively articulated: a change which could in no other way have been so promptly and commodiously effected. The valuable ends answered by levers of the third kind, the kind of levers employed in producing the motions of the fore-arm on the arm, were announced; and the objects to be gained by the introduction of a number of small bones betwixt the fore-arm and the fingers—the prevention of vibration, and occasionally of severe shocks, in using the hand—were theoretically and practically deduced. After noticing the simple joints of the fingers, the joints of the human fabric were generally examined. A hinge-joint was shewn to differ essentially from a common unorganized hinge, having no pin passing through it, but a beautifully constructed capsular ligament answering that purpose.

The self-lubrication of the animal joint was pointed out, and the admirable adjustment of the quantity of synovia, or joint-oil; so that for a long series of years, excepting when *hydrops articulorum* occurred, there never appeared to be any redundancy. An attempt to imitate this self-lubrication, in the ingenious axles of Collins and Birch, and in the admirable ball and socket hinge of the former eminent mechanic—suggested, as he often confessed, by the form of the hip-joint of a fowl—was noticed, and their inferiority as to lubrication declared. After which the peculiar and powerful influence of the pressure of the atmosphere in preserving the surfaces of the head of the thigh-bone, and the cavity of the acetabulum, in contact so firm as to be with difficulty overcome, was fully asserted. In order to render intelligible the plan of restoring the

body to an upright position, and preserving it in that position, the nature and operation of the centre of gravity, or centre of inertia, was experimentally demonstrated; and after taking a somewhat different view of the uses of the patella, ascribing much of its efficacy to its acting as a rigid shield placed firmly over the knee joint when drawn upwards by the extensors of the leg, Dr. Birkbeck concluded with a description of the mechanism of the ankle and the foot, in conjunction with the muscular forces by means of which they are exercised.

This second lecture was attended even by a larger audience than the preceding one. The subject of the third (to be delivered this evening) will be Animal Hydraulics.

COLLEGE OF PHYSICIANS.

The following is the paper on Coup de Soleil, which we mentioned was read at the last evening meeting of the College:—

On Coup de Soleil. By J. J. Russell, Esq. 73d Regiment. Communicated by Dr. J. Wilson.

I was led, by the following circumstance, to reflect on the nature of "Coup de Soleil;" which, as well as I can recollect, is treated of by all authors, and is generally considered to be, nothing more or less than true apoplexy, produced by the direct influence of the sun's rays; that its pathology is the same, and its mode of treatment similar—that is, that all the efforts of the medical attendant should be directed to the *head*, as the chief, nay, almost the only, seat of the disease: and here it strikes me a fallacy exists, leading to erroneous principles of practice.

In May, 1834, while I was in medical charge of the 63d regiment (a fine corps, composed of men in robust health), then recently arrived at Madras, the funeral of a general officer took place; to which, unfortunately, the men were marched out at an early hour in the afternoon, buttoned up in red coats and military stocks,—at a season, too, when the hot "land-winds" had just set in, rendering the atmosphere dry and suffocating even under shelter of a roof, and when the sun's rays were excessively powerful. The consequence was, that after proceeding two or three miles, several men fell down senseless. As many as eight or nine were brought into hospital that evening, and many more on the following day; three died—one on the spot, and two within a few hours. The symptoms observed (and they were alike in these three cases) were, first, excessive thirst, and a sense of faintness; then difficulty of breathing, stertor, coma, lividity of the face, and in one, whom I examined, contraction of the pupil. The remainder of the cases, in which the attack was slighter, and the powers of reaction perhaps greater, or at all events sufficiently great, rallied; and the attack in them ran on into either an ephemeral or more continued form of fever. The symptoms of these three cases did not more closely resemble each other, than did the "post-mortem" appearances. The brain was, in all, healthy; no congestion or accumulation of blood was observable; a very *small* quantity of serum was effused under the base of *one*, but in all three the lungs were congested even to *blackness* through their entire extent; and so densely loaded were they, that complete obstruction must have taken place. There was also an accumulation of blood in the right side of the heart, and the great vessels approaching it. A tumor was found in the right side of the thorax of one of the men, (Brennan); it was attached to the upper surface of the diaphragm, pressed against the right side of the heart, and intruded on the space which should have been occupied by the lung. It was six inches in length and four in breadth, consisted of a cyst, with a reflection of the pleura for an outer coat, and contained twenty two ounces of a straw-coloured serum. During the man's life there was no suspicion of the existence of such a powerful predisposing cause to the disease which terminated his life. He was a thin muscular man, remarkably active, and not at all of an apoplectic habit*.

Now, I think it may be fairly inferred, that death arose from the *obstructed* condition of the *lungs:* the whole column of blood being thrown suddenly, and with force, upon these organs, surprises them; it continues to flow with impetus, and in such a quantity, as to overpower them. They are unable to regain their elasticity, or throw off the load, and *suffocation* is the result; so that, instead of extravasation, or pressure on the brain, there is a deficiency of blood in that viscus. The existence of the tumor in Brennan's case only strengthens my conjecture.

It thus appearing, that the first and chief seat of mischief in "coup de soleil" is in

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* I being too ill at the time to enter the dead-house, the post-mortem examinations were made by Dr. Mortimer, surgeon of the General Hospital, who kindly attended, and sent the parts to me in the adjoining house for inspection. As he is a most accurate observer, I was the better pleased that he should have witnessed the appearances.

the cavity of the *chest*, and not in the *head*, our remedial agents should be immediately directed to that part; efforts should be made to relieve it of the incumbrance with which it is blocked up, and to restore the circulation, — and thus the just relation would be retained which should ever exist between the morbid condition, the symptoms, and the treatment.

At the same time it must be observed that, as soon as re-action shall have been established it will be necessary to guard the brain against the force of a suddenly restored circulation. But this is to be looked upon only as a secondary effect of "coup de soleil."

These brief observations are offered chiefly with a hope of drawing the attention of more competent judges to the subject, and of assisting to throw some light upon other disorders of the *cerebral* functions, caused, apparently, by disease of the lungs.

OBSERVATIONS, ILLUSTRATIVE

OF

RENAL DISEASE

ACCOMPANIED WITH THE SECRETION OF ALBUMINOUS URINE.

BY DR. BRIGHT.

The importance and extensive prevalence of that form of disease, which, after it has continued for some time, is attended by the peculiar changes in the structure of the kidney, now pretty well known by the names of 'mottling,' 'white degeneration,' 'contraction,' or 'granulation,' impresses itself every year more and more deeply on my mind; and whether I turn to the wards of the hospital, or reflect on the experience of private practice, I find, on every side, such examples of its fatal progress and unrelenting ravages, as induce me to consider it amongst the most frequent as well as the most certain causes of death in some classes of the community, while it is of common occurrence in all; and I believe I speak within bounds, when I state, that not less than five hundred die of it annually in London alone. It is, indeed, a humiliating confession, that, although much attention has been directed to this disease for nearly ten years, and during that time there has probably been no period in which at least twenty cases might have been pointed out in each of the large hospitals of the metropolis—and there is reason to believe that double that number may, at this moment, and at all times, be found in the wards of Guy's Hospital—yet little or nothing has been done towards devising a method of permanent relief, when the disease has been confirmed; and no fixed plan has been laid down, as affording a tolerable certainty of cure in the more recent cases. I believe that our want of success, in what are considered the more recent attacks, is frequently owing to the fact, that the disease is far more advanced than we suspect, when it first becomes the object of our attention: and I am most anxious, in the present communication, to impress upon the members of our profession the insidious nature of this malady, that they may be led to watch its first approaches, with all the solicitude which they would feel on discovering the first suspicious symptoms of phthisis or of epilepsy. There is great reason to suppose that the seeds of this disease are often sown at an early period; and that intervals of apparent health produce a false security in the patient, his friends, and his medical attendants, even where apprehension has been early excited.

The first indications of the tendency to this disease is often hæmaturia, of a more or less decided character: this may originate from various causes, and yet may give evidence of the same tendency: scarlatina has apparently laid the foundation for the future mischief: exertion in childish plays has done the same; or it has sometimes appeared to be connected with suppressed catamenia. Intemperance seems its most usual source; and exposure to cold the most common cause of its development and aggravation. It is, however, more particularly to those causes which operate in youth, or are apparently so casual as to tempt us to believe that when the immediate symptoms are subdued no evil can result, that I wish to direct attention. Where intemperance has laid the foundation, the mischief will generally be so deeply rooted before the discovery is made, that, even could we remove the exciting cause, little could be hoped from remedies; but at the same time, a more impressive warning against the intemperate use of ardent spirits cannot be derived from any other form of disease with which we are acquainted; since, most assuredly, by no other do so many individuals fall victims to this vice.

The history of this disease, and its symptoms, is nearly as follows:—

A child, or an adult, is affected with scarlatina, or some other acute disease; or has indulged in the intemperate use of ardent spirits for a series of months or years: he is exposed to some casual cause, or habitual source, of suppressed perspiration: he finds the secretion of his urine

greatly increased, or he discovers that it is tinged with blood; or, without having made any such observation, he awakes in the morning with his face swollen, or his ankles puffy, or his hands œdematous. If he happen, in this condition, to fall under the care of a practitioner who suspects the nature of his disease, it is found, that already his urine contains a notable quantity of albumen: his pulse is full and hard, his skin dry, he has often headache, and sometimes a sense of weight or pain across the loins. Under treatment more or less active, or sometimes without any treatment, the more obvious and distressing of these symptoms disappear; the swelling, whether casual or constant, is no longer observed; the urine ceases to evince any admixture of red particles; and, according to the degree of importance which has been attached to these symptoms, they are gradually lost sight of, or are absolutely forgotten. Nevertheless, from time to time the countenance becomes bloated; the skin is dry; headaches occur with unusual frequency; or the calls to micturition disturb the night's repose. After a time, the healthy colour of the countenance fades; a sense of weakness, or pain in the loins, increases; headaches, often accompanied by vomiting, add greatly to the general want of comfort; and a sense of lassitude, of weariness, and of depression, gradually steal over the bodily and mental frame. Again the assistance of medicine is sought. If the nature of the disease is suspected, the urine is carefully tested, and found, in almost every trial, to contain albumen, while the quantity of urea is gradually diminishing. If, in the attempt to give relief to the oppression of the system, blood is drawn, it is often buffed, or the serum is milky and opaque; and nice analysis will frequently detect a great deficiency of albumen, and sometimes manifest indications of the presence of urea. If the disease is not suspected, the liver, the stomach, or the brain, divide the care of the practitioner, sometimes drawing him away entirely from the more important seat of disease. The swelling increases and decreases; the mind grows cheerful, or is sad; the secretions of the kidney or the skin are augmented or diminished, sometimes in alternate ratio, sometimes without apparent relation. Again the patient is restored to tolerable health, again he enters on his active duties; or he is perhaps less fortunate: the swelling increases, the urine becomes scanty, the powers of life seem to yield, the lungs become œdematous, and, in a state of asphyxia or coma, he sinks into the grave; or a sudden effusion of serum into the glottis closes the passages of the air, and brings on a more sudden dissolution. Should he, however, have resumed the avocations of life, he is usually subject to constant recurrence of his symptoms; or again, almost dismissing the recollection of his ailment, he is suddenly seized with an acute attack of pericarditis, or with a still more acute attack of peritonitis, which, without any renewed warning, deprives him, in eight and forty hours, of his life. Should he escape this danger likewise, other perils await him; his headaches have been observed to become more frequent; his stomach more deranged; his vision indistinct; his hearing depraved: he is suddenly seized with a convulsive fit, and becomes blind. He struggles through the attack; but again and again it returns; and before a day or a week has elapsed, worn out by convulsions, or overwhelmed by coma, the painful history of his disease is closed.

Of the appearance presented after death, enough will be said in another part of the present communication: but one question may be asked in this place—Do we always find such lesion of the kidney as to bear us out in the belief, that the peculiar condition of the urine, to which I have already referred, shows that the disease, call it what we may, is connected necessarily and essentially with the derangement of that organ? After ten years' attentive (though, perhaps, I must not say completely impartial) observation, I am ready to answer this question in the affirmative; and yet I confess that I have occasionally met with anomalies which have been somewhat difficult to explain.

I have certainly seen one or two cases, and have read statements of one or two more, in which the condition of the kidney would have led me to expect albuminous urine, but in which it had not been found to exist. In all these cases, however, the observations on the character of the urine have been made only a few days or weeks before death, at the close of a protracted illness; or the disease of the kidney has been complicated with other very extensive disease. A case occurred under my care, in the Clinical Ward, this winter, where a man died with ascites and a complication of most extensive disease of the liver and peritoneum, with moderately-advanced granulation of the kidney; yet it was only by the most careful examination that any traces of albumen could be detected in his urine: and this leads me to observe, that the secretion is apt to undergo changes, even after the structural disease is established; which renders it requisite that we should not be content with examining the urine on one or two occasions, if we have any reason to suspect the ex-

istence of this disease. In the first place, it is quite certain that if, from any cause, the urine becomes alkaline, the application of heat generally fails to produce coagulation; and in the next place, there has appeared to me to be an occasional alternation in the secreting power of the kidney; so that a large quantity of the lithates, or of crystallized lithic sand, is deposited, and the albuminous matter is not thrown off. I have this winter had a case of this kind likewise under my care, in a man whose symptoms bear all the character of renal disease, complicated with the disease of other viscera. His urine for several weeks was found to be distinctly albuminous: it then became loaded with the lithates; and now throws down abundant crystals of lithic sand, and no longer affords any trace of albumen: and mentioning this case to Dr. Addison, I was told that very lately the converse of this had shown itself in a case to which he had been called. All the symptoms led him to suspect this peculiar form of renal disease; but the urine did not coagulate, and was loaded with lithates. After a short time, the lithates disappeared, and now the albumen is very decidedly perceived in the urine. That such facts as these tend, in some degree, to render the presence of albumen in the urine, or its absence, a less unerring test, cannot be doubted; but these anomalies are so few as to interfere very little with the general fact: and after all, in the present state of our knowledge, how few of our diagnostic marks are not more or less under the influence of the casual complications of disease. There is no doubt, likewise, that the morbid condition of the kidneys connected with this disease varies, in different cases, to such a degree as to lead to the belief that the action from which the change has resulted must at least be modified by circumstances and constitutions. The kidney is sometimes simply contracted and hardened; sometimes loaded with an adventitious deposit; sometimes apparently degenerated throughout its whole texture; sometimes affected both with deposit, degeneration, and contraction; all probably the result of chronic excess of action. It is to be expected that modifications should arise in the degree and constancy of the morbid secretion, under such varieties of diseased appearance: but this is not, as yet, satisfactorily known; and I have certainly not always found the quantity of albumen increased in proportion to the apparent advance in the structural disease.

Another very important question is, the length of time which this disease may exist in the constitution, before it runs to its last fatal period: and although our experience in the hospital is great, the point of duration is yet undetermined; for, with all the advantages which an hospital affords for the multiplied accumulation of facts, there are some points on which the information derived in its wards is defective, and even apt to be erroneous; and amongst these may be reckoned one of great importance—the probable duration of life, under any disease. If a case is much relieved, the hospital physician loses sight of it, and in all probability sees it no more; knowing nothing of future relapses, or of the ultimate result. On the other hand, a very large proportion of his cases are arrived at the most advanced stages of the respective disorders: the circumstances of the patients have been such as to render them inattentive to the earlier indications of disease; and it is only when they can no longer pursue their laborious occupations that they are driven, too late, to seek relief. Hence the physician is liable to form a wrong estimate of the progress of the disease under more favourable circumstances; and it is necessary to correct his views by a comparison with the history and results of private practice.

There has not yet, perhaps, been sufficient time, since this disease of the kidneys first attracted attention, to say to what extent life may be prolonged while the body is under its influence; but I believe, with care, its fatal effects may be kept at bay, and a hazardous life may be protracted for many years. Should that care be neglected, the chance of life will be greatly diminished.—*Guy's Hospital Reports*, No. 2.

MORISON'S PILLS.

TRIAL FOR MANSLAUGHTER.

Central Criminal Court, April 6.

Before Mr. Justice Patteson.

Robert Salmon, a "Hygeian" agent, was put to the bar, charged with having caused the death of John M'Kenzie, by having administered to him, on the 20th of January, and at other times, large and excessive quantities of pills, composed of portions of gamboge, cream of tartar, and other articles of a noxious, destructive, and deleterious description, he having no knowledge of medicine, and having no license to sell or administer such medicine.

There were other counts in the indictment varying the charge against the prisoner.

Messrs. Clarkson and Bodkin appeared for the prosecution, and Sir F. Pollock,

and Messrs. Adolphus, C. Phillips, and Espinasse, conducted the defence.

Mr. CLARKSON stated the case to the jury, and called the following witnesses:—

Anne M'Kenzie, examined by Mr. BODKIN, deposed she was the widow of the deceased John M'Kenzie; he was 32 when he died. He was a man of good constitution. She knew a Miss Lane, who was doing needlework at her house in December last. She told witness she sold Morison's pills. Witness's husband was very much against them at first; but he said, towards the end of December, he would take them as an opening medicine; but at that time he never exceeded four; he had then no complaint. He said after taking them that they made him light. In January he had a rheumatic attack in the knee. In the latter end of December prisoner called at her house and asked for Captain M'Kenzie, her husband. He said he came from Miss Lane, and, putting down a card, said he lived at No. 6, Farringdon-street. He asked her what was the matter with her husband, and she said, nothing that she knew of. Her husband was then as stout healthy a man as could be seen in a day's walk. In a day or two the prisoner called, and saw her husband; she heard what passed. He told the deceased that he was not to take No. 2 pills without also taking the No. 1 pills. The prisoner said, "I am told you were much prejudiced against the pills at first, but they cure all diseases, and do a great deal of good." Her husband said he had bought an 11s. package at the "College of Health" to take out with him to the West Indies. Salmon went away, and did not call again until the middle of January, when her husband had a pain in his knee. Prisoner said he had seen Miss Lane, who had been informed by witness's little girl what was the matter with the deceased. She told him that Miss Lane ought not to have taken it upon her to send him, as they did not want him. In a few days the pain increased, and, by her husband's desire, Salmon was sent for. He came on Wednesday, January 20, and, before he went, ordered her to give deceased twenty of No. 1 of Morison's pills that night, and twenty of No. 2 on the following morning, "to drive off the No. 1's:" she gave her husband that night ten of the No. 1, and ten of the No. 2 on the following morning. Prisoner called in the early part of next day, and asked her if she had given him the proper number, and she said "yes." He told her that she was to increase five at every dose, which was to be administered night and morning. She did not tell him that she had administered only half the quantity he had ordered. Prisoner called every day but Saturday. She never gave deceased the full quantity ordered, but always a great deal less, and Salmon said he doubted her very much. She sometimes gave him fifteen or twenty at a time; sometimes none, at night; but she always gave him some in the morning. They affected his bowels very much, and frequently caused him to vomit. On the Sunday his bowels were much irritated, and he said he feared there was something the matter with him worse than his knee. Salmon called late on Monday. When she told him how deceased was affected, he said she had not been giving him doses enough, and had given him too much food. He said the fever would feed her husband without any food. Her husband was then so weak that he could hardly rise from his bed. Prisoner told her to give him hot water and salt, and ordered more pills, telling her to go on increasing each dose by five. He called on Tuesday, and on telling him that her husband was very ill, he said, she had not given him sufficient doses, and added, that she was alarming herself without any cause, and that if she would only give him the proper doses he would be well in a day or two. The purgative effect increased with the increase of pills, and on Tuesday night her husband became quite delirious. Mr. Cummings, a medical man, was called in on Wednesday. Salmon called twice on that day. The first call was after Mr. Cummings had left. Mr. Cummings had not administered any medicine to deceased on that day. Her husband was at the time quite delirious. Prisoner told her to give deceased twenty-five pills that night, as they would compose him to sleep, and he would be better in the morning. He called again about 10 o'clock at night. She was crying near the bed, and he said she had no cause of alarm, as her husband was doing well. She told him that a medical man had seen him, and said he was in a very dangerous state. He said, if he saw a medical man near the bed he would put him out of the house. He then administered twenty-five pills to the deceased, saying he doubted her. He told her to give him thirty or thirty-six of No. 2, in the morning. She did not do so, but gave him about twenty. They operated as a violent purgative, and frequently. He came on Thursday, and she told him, as she had always done, the state in which she conceived her husband to be, and he ordered more pills, and asked to see the pill-box. It was empty, her husband having taken the whole 11s. package, which had been purchased from Miss Lane. He said he would call upon Miss Lane, and order some more pills. She

said he was ordered not to take any more, and prisoner said he would give him 100 at a time if he thought he wanted them. She said her husband was getting very thin, and he replied, "I must take off the flesh before I can raise him up." He added, that the deceased would rise up a new man, and she said she should like to see him rise up the man he was before. He ordered her to give him 35 pills at three o'clock on that day. She told him that her husband could not take them, as he was continually throwing them up and throwing up blood also. He repeated his orders, and said he would have them sent. Miss Lane called about three o'clock, and brought a box of pills, which she said were "Morison's," and also a box of powders, for both of which witness paid 13s. 4d. Some brandy and water was offered to deceased, but he could not take it. Prisoner called next day about 10, and had two powders (about two table spoonfuls) in paper. He mixed them in some water: one was darker than the other. She asked him what it was, and he said it was pills pounded. He desired her to raise up her husband, which she did; he was then very weak, and could hardly move. (Here the witness became much affected). The prisoner then put the cup to the mouth of deceased, and he swallowed the contents. Prisoner went down stairs and saw a Mr. Gray. She went down also, but on her return up stairs she found the deceased had thrown up what he had taken, and a quantity of blood also. She sent for prisoner, who, on coming up, said, "As there is always straggling blood inside, don't alarm yourself." Her husband said, "My dear, it is poison—he has poisoned me." On prisoner going down stairs, Mr. Gray asked him if he was a medical gentleman, and he said "Yes." Mr. Gray asked to see his certificate, and prisoner said it was not usual for medical men to carry their diplomas about them. He asked him if he was enrolled as a surgeon, and he said he was. Mr. Gray said he was not treating Captain M'Kenzie properly, and asked him where he lived, to which he answered, "In the city," and went away. Mr. Gray then went for Mr. Cummings, the surgeon. Prisoner called again in the evening. Her husband had given orders not to let him see him, but he ultimately did go up stairs. Her husband said to prisoner, "Go out; you will be paid for your trouble, but you have poisoned me—you have poisoned me right out." She told prisoner that a doctor was to call next day, and he replied, her husband was doing well, and that she need not call in a doctor. She told him that one had been in already. To which he replied, "You are not so much to blame as your friends, who are alarming you needlessly." She expressed her own alarm, upon which the prisoner seemed himself much agitated and alarmed. He said he would call next day, and bring a medical man with him. A Captain Allen and Mr. Gray came in, and asked the prisoner a great many questions, and he always represented himself as a medical man. Deceased continued getting worse and worse. Prisoner called next day, and brought a Dr. Lynch, but she would not let them see her husband. This was on the Saturday. On that night, about 12 o'clock, her husband changed, and became cold all over; he continued getting worse until 3 o'clock on Monday morning, when he expired. He had received no medicine from the doctors.

Cross-examined by Sir F. Pollock.—She had never seen Salmon until he called upon her. At his first visit he gave her a card, stating his name and where he lived. He called three times before he attended as a professional gentleman. Her husband had, during that time, taken three or four doses of the pills, four at a time. She never gave her husband any pills made of bread. When Salmon ordered 20 pills night and morning, she gave only 10, but told him that she had administered the full quantity, upon which he more than once said they did not produce the effect he expected. She two or three times omitted to give any of the No. 1 pills at night, but not running. Prisoner said that the No. 1 were "searchers," and that No. 2 were to drive them off. The No. 1 pills did not purge the deceased. The largest number she had given him at a time was 20, except once, when she believed she gave him 25 of No. 1. She was afraid to give the full quantity, as she had heard of so many deaths by Morison's pills. She had known her husband all her life, they were school-fellows. He had been at sea since he was eight years of age. He never took any medicine but senna and Seidlitz powders. He had had a fever two years since in Jamaica, and had taken a good deal of mercury. He had never been attacked by rheumatism until the time when he sent for the prisoner.

Mr. Edward Spinks Cummings, surgeon and apothecary, residing at Limehouse, described the situation in which he found the deceased, in a manner which corroborated the testimony of the other witnesses as far as concerned him. He could scarcely breathe, and spoke with difficulty. He told witness how he had been treated, and complained of his knee, and of pains in the pit of the stomach. He examined the knee, and found that he

laboured under a rheumatic affection; that disorder had nothing to do with the disorder in the stomach. Having heard the sort of medicine he had been taking, he did not order it to be discontinued, as he had no charge which would authorize him to do so; but he gave it as his opinion that the treatment, if continued, would prove fatal. He advised chicken broth, in order to try and restore the tone of the stomach. When he called on the Friday, about eleven o'clock, he found him much worse. He lay still, with his eyes half closed; his pulse was weak, his breath faint, and it was witness's opinion that he would shortly die. Witness declined acting without assistance, and Dr. Cobb was in consequence called in; but deceased was not then in a condition to take medicine. An enema was administered to him. On Saturday night he became worse, and witness did not think that any medicine in the world would at that time relieve him. He understood that the pills consisted of portions of gamboge and aloes, and other ingredients. He had heard cream of tartar and asafœtida spoken of as other ingredients. There had been a post-mortem examination, and the stomach was found inflamed and ulcerated. There was at the bottom of the stomach, near the lower opening, a patch of ulceration larger than a shilling. If the deceased took the quantities of medicine described, it would account for the appearances he had witnessed, and which had caused death.

By the Court.—The ulceration must have been of recent occurrence; it could not have been of three months' standing. In his opinion it had commenced on the Friday. The appearance which he had found in the stomach would account for the death. Mucus such as he had seen, and in such quantities, would not have passed without some strong exciting cause.

Cross-examined by Sir F. Pollock.—He is a member of the College of Surgeons. He did not advise any medicines, as he thought they would be improper in the situation in which the deceased then was. He thought that the medicines named would, if mixed and administered in large quantities, produce the effects he had witnessed in the stomach. He thought twenty pills of gamboge and aloes would produce vomiting and purging. He had administered ten grains of aloes at a time, and three grains of gamboge at a time. When gamboge, aloes, cream of tartar, and asafœtida, were mixed, he could not tell the precise quantity at which the dose would cause danger to commence and safely to end. He should say that ten grains of Morison's pills, supposing them composed of aloes and gamboge, would be a strong dose; twenty would be dangerous, and, if taken night and morning, highly so; but much depended on the constitution. He did not know the difference between the pills No. 1 and No. 2; that which had most gamboge would be the strongest. If each pill contained half-a-grain of gamboge, with ten grains of aloes, it would be an over dose. He thought thirty of such pills, night and morning, for two or three days, would be an improper dose to take. If ten persons were to take such doses for several days together, at least two or three of them would die; and if it was stated by persons that they had taken such doses for a long time, either such statements must be false, or else witness's theory must be wrong. He never found that a small dose of aloes would cause irritation when a larger one would not. He had administered aloes in doses of from one to ten grains, and gamboge in doses of from one to three grains. He had heard Mrs. M'Kenzie's evidence to-day. He heard her say that she gave a less number of pills than was ordered, and that she sometimes kept back the pills No. 1 at night, and gave No. 2 pills in the morning. He also heard her say that No. 2 ought not to be taken without No. 1. He thought it would not be fair to judge of the effect of medicine so administered.

Re-examined.—He thought that a competent medical man could, on the Wednesday, have told that there was inflammation of the stomach, and would not have administered two spoonfuls of the pills powdered on the Thursday and Friday. Such a dose would produce the symptoms he witnessed in the stomach of the deceased, and was likely to cause death.

Dr. Frederick Cobb, examined by Mr. Bodkin.—Had been a practising physician in London 11 years, and was physician to the London Hospital. He saw the deceased on the Saturday before his death, and was informed that he had taken a large quantity of Morison's pills. Directed a mustard poultice to be applied to the pit of his stomach, and ordered a mucilage and some chicken broth to be given to him. The object of the mucilage was merely to sustain life, as no medicines were administered, though enemas of strong beef-soup, with small quantities of brandy, were given. Attended the *post mortem* examination of the body on Monday, the 1st of February, at 2 o'clock, and produces the notes of the observations he took as to the appearances 12 hours after death. The liver was rather large and congested, but no active disease; peritoneum free from inflammation or other disease; sto-

mach much contracted; the middle of the great curvature exceedingly inflamed, with two spots of ulceration, one the size of a shilling; the mucous membrane of the intestinal canal was inordinately injected with dark-coloured blood; in the ileum and jejunum the mucous membrane had the appearance of lymph effused within its substance, and greatly softened; in other parts the membrane was so thin as to give it the appearance of ulcerated destruction. In the cœcum and colon was a mass of yellow pulpy matter mixed with feculent matter. On opening the knee joint there was an effusion of lymph. The head was loaded, but not seriously diseased. There was abundant appearance in the stomach to account for death, but in no other part of the body. Taking large quantities of drastic medicine would produce such appearances. He had heard Mrs. M'Kenzie's evidence. He thought the dose described by her to have been administered to deceased on Friday, of two table spoonfuls of Morison's pills in powder, highly improper, and was of opinion no man of competent skill would have administered it. It required a nicety of judgment to discover the existence of inflammation, as it did in most internal diseases; but any person of competent skill seeing the deceased on Saturday must have known that he was labouring under some destructive mischief to a vital organ, and that in such case it was highly improper to continue the previous course of medicine. If the medicines of which he had heard had been administered in the quantities described, they would be quite sufficient to account for the death. He could name no medicine the good effects of which were increased in proportion to the increased quantity taken.

By the Court.—There was no medicine of which too large a dose might not be given. It was unfair to judge of the effects of medicine where the whole quantity prescribed was not administered. Telling Salmon under such circumstances that the full quantity had been taken would be likely to mislead him, and induce him to increase the dose, when he found that the effect he expected had not been produced.

Mr. R. Phillips, lecturer on chemistry at St. Thomas's Hospital, had analysed some of the pills in question. They were of different sizes and colours. No. 1 consisted of cream of tartar and aloes; there was a smaller quantity of another substance, the nature of which he had not time to ascertain; he at first thought it was colocynth. The larger, or No. 2 pill, consisted of aloes, gamboge, cream of tartar, and another substance, which he had not time to make out. He did not know the proportions of any of the medicines in either.

Mr. Thomas Springly Sandell, an assistant to last witness, said that both No. 1 and No. 2 contained a little asafœtida. He could not tell the proportions of any of the ingredients.

This closed the case for the prosecution.

The prisoner read a long written defence, vindicating the "Hygeian" system of one remedy for all diseases, and abusing the members of the faculty who apply various remedies to various complaints.

Several witnesses were called on behalf of the prisoner, or rather of Morison's pills. Some of them had taken 1000 pills in twenty days, without injury, and one man testified to having swallowed 20,000 pills in the course of two years, which cost him 22*l*.

Mr. Justice Patteson patiently summed up the evidence for the jury, who retired about ten o'clock, and in half an hour brought in a verdict of *Guilty*; they, however, recommended the prisoner to mercy, as he was not the compounder, but the vender only of the pills.

SCHOOL OF PHYSIC, DUBLIN.

To the Editor of the Medical Gazette.

Sir,

In reply to Dr. Macartney's letter, published in the Medical Gazette of the 19th instant, I beg leave to observe, that although extensive in its details, it disproves nothing in my statement. (See Med. Gaz. of 5th March.)

When the measure was originally adopted of printing a lengthy correspondence, the concise part of it, which connected the successive resolutions of the Board of Trinity College with one another, ought not to have been omitted, especially as its publication would have proved the consistency of their conduct, whilst its omission exposed them to the charge of caprice.

The superintendents of the School of Physic, vested by law with ample authority for its direction, are not in the habit of estimating the value of individual courses of lectures by the opinion that a Professor may entertain, either as to the importance of his own department, or the degree of his own merits; nor do they usually attend to his suggestions for the benefit of his colleagues. They consider that no nominal, and scarcely any real, advantage connected with an alteration, can

compensate for the inconveniences and abuses attendant on the delivery of two medical lectures at the same hour; and that no school of physic can be called "*complete*" where it is not in the power of the student to attend, during the session of his sojourning, two or even three courses of lectures on any subjects on which he may require information. Since surgery and the practice of medicine may, and very often do, form two of such subjects, they accordingly prohibit the delivery of lectures on both at the hour of three o'clock.

The Board of Trinity College know nothing of Drs. Macartney, Osborne, or Lendrick, in the transaction; but they are aware that it is desirable that the two lectures on the theory and practice of medicine should follow in immediate succession daily, in order to enable the students to attend during the same session, lectures on these almost inseparable subjects, without the necessity of going to such a distance as that of Sir P. Dun's Hospital (where these lectures are delivered) twice in the day; and further, that this object is unattainable without either requiring these *two* Professors to alter their present hours of lecture, as established for *many* years; or permitting two lectures at the same hour; or, finally, preventing the Professor of Anatomy and Surgery from lecturing at *three** o'clock. This they have done, and nothing more.

Besides the hour of one o'clock, allotted to the Professor of Anatomy and Surgery, I still maintain that there *are* others available for a second lecture in the day, if he chooses to deliver such.

1st. As to the objection to the "evening," urged by Dr. Macartney in the Gazette, page 1002—viz. "a low tavern, in which several students have been led into scandalous excesses even during the day"—such places of resort no doubt exist in the neighbourhood of the College *front and rear*, and, indeed, every where else; and persons of low habits and dissolute conduct will visit them, whether lectures are delivered in the evening or not; but from the experience of three years as a professor, and nine as a private lecturer, I can confidently assert, that a very little exertion on the part of the teacher to check immorality among his pupils, will be crowned with success, in the *few* instances where the disposition may display itself. If liable to be sometimes led astray by bad example, they are exceedingly manageable, where their preceptor steadily sets his face against all impropriety.

As to the other objection to "the night hour," it is sufficient to observe, as you will perceive from the reports in the Lancet, that Sir Astley Cooper shewed both preparations, and operations on the dead body, to his surgical class in the evening.

2d. As to "the morning hours" being unfit for surgical lectures, on account of the students being engaged at "hospitals" (unconnected with the School of Physic), it is by no means necessary that Dr. Macartney's pupil should visit, among many hospitals, that where the hour of attendance is the one selected for *his* surgical lecture; nor is it very consistent in Dr. M. to object to interfere with the hour of a foreign establishment, and yet to encroach on that which has for years been occupied in the School of Physic with which he is connected.

Whilst noticing *my* "interest," Dr. M. has omitted to allude to his own, as affected by the increase of emolument from the separation of his courses, and the transfer of that on surgery to the hour of three o'clock. That such a practice was lucrative I take for granted, from his assertion in the 1002d page of the Gazette, that on discontinuing it, he "returned money" to the class.

I feel obliged by his acquitting me of "any wish to injure the school." Neither he, I, nor any other Professor, however, have the power, if we even had the inclination. Its management is vested in those who have the means of controlling us, and who will doubtless take care that we adhere to the terms of our oath, and that the establishment shall be conducted in the manner most conducive to the continuance of its prosperity, and to the welfare of its pupils.—I remain, sir,

Your very obedient servant,
CHARLES LENDRICK.

Dublin, March 24, 1836.

* The lectures on the practice and the theory of medicine occupy the two hours (from three till five) preceding that of the College dinner.

REMUNERATION FOR ATTENDANCE AT INQUESTS.

To the Editor of the Medical Gazette.

SIR,

I WILL thank you to publish a copy of the following petition, which I have sent to Lord Ashley, one of our county members, to present in the House of Commons, in an early number of the Medical Gazette.

I remain, sir,
Your obedient servant,
JOHN REYNOLDS ROWE,
Secretary to the County of Dorset Medical Association.

Wimborne, March 31, 1836.

To the Honourable the Commons of the United Kingdom of Great Britain and Ireland, in Parliament assembled.

The humble petition of the members of the Medical Association of the County of Dorset,

Sheweth,

That medical practitioners are occasionally summoned by his Majesty's coroners to give evidence in cases of inquest.

That in order to afford such evidence, it is often necessary to make post-mortem examinations, requiring much time, trouble, and skill, and attended with danger to the health and even life of the operator.

It has long been a subject of grievance to medical practitioners, that for this duty the law awards no compensation, and they are disappointed by finding that the Poor-Law Amendment Act provides no remedy.

Considering the importance of the services thus rendered to society at large, especially in the furtherance of the ends of justice, it does appear just that the same reasonable compensation which is awarded to all other professional men for public duties should be extended to medical practitioners.

We, the undersigned, the committee of the said Association, humbly pray that your honourable House will be pleased to take this matter into your early consideration, and provide such redress as shall be deemed equitable.

And your petitioners will ever pray.

COLLEGE OF SURGEONS.

LIST OF GENTLEMEN WHO RECEIVED DIPLOMAS IN MARCH.

Thomas Dakyn, A.
Edward H. Eykyn, Ackleton, Salop.
Thomas Bentley, Roundwood, Wicklow.
Robert B. Gahan, A.
Charles A. Hawkesworth, Staffordshire.
Charles E. Blair, Portuguese Service.
John S. Griffin, York Road, Lambeth.
William L. Seagram, Warminster.
Robert Hayward, R. N.
Edward L. Bryan, Stow Market.
John D. V. Packman, Puckeridge.
Robert Jones, Dolgelly.
W. Du Heaume, Jersey.
William Jones, Birmingham.
Thomas Haymes, Great Glenn, Leicester.
Wm. W. G. Garrett, Newington Butts.
John C. Burrows, Brighton.
John Sumpter, Pembroke.
John Gorham, Tonbridge.
William H. Turner, Bermondsey.
William S. Kerbey.
Edward B. Walford, Woburn Place.
Charles Knevett, Isleworth.
Samuel Nicholson, Manchester.
James G. Davey, Portsmouth.
Henry D. Shea, R. N.
Charles S. Webber, Manchester Square.
Thomas Ashmall, Wolverhampton.
John Russell, Merthyr Tydvell.
Walter Landor, Liverpool.
Robert Wallis, South Shields.
Walter Moore.
Wm. S. Harding, St. John's, New Brunswick.
George J. Gossling, Macclesfield.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

March 31, 1836.

Benj. Collenette, Saint Peter's Port, Guernsey.
Chas. Wm. Henry Howell, Brentwood, Essex.
Frederick Pritchard, Stratford-upon-Avon.
Andrew Good Brookes, Much Wenlock, Salop.
George Redsall Carter, Deal, Kent.
John Staines Webb, Crewkerne, Somerset.
Charles Anthony Merriman, Marlborough, Wilts.

April 7.

Samuel John Thomas, London.
John Micklethwait, Sheffield.
Wm. Alfred Newman Cattlin, London.
Morgan Culhane, Croydon.
John Charles Knight Coates, Salisbury.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *April* 5, 1836.

Abscess	4	Hooping Cough	1
Age and Debility	42	Indigestion	1
Apoplexy	5	Inflammation	17
Asthma	14	Brain	1
Cancer	4	Lungs and Pleura	5
Childbirth	7	Insanity	4
Consumption	44	Liver, diseased	11
Convulsions	27	Measles	4
Dentition or Teething	3	Miscarriage	1
Dropsy	16	Mortification	6
Dropsy on the Brain	12	Paralysis	3
Erysipelas	3	Small-pox	9
Fever	4	Stricture	1
Fever, Scarlet	3	Unknown Causes	14
Fistula	1		
Gout	1	Casualties	4
Heart, diseased	4		

Increase of Burials, as compared with the preceding week . . . 24

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

March, 1836.	THERMOMETER		BAROMETER.	
Thursday . 31	from 37	to 47	29·61	to 29·82
April.				
Friday . . 1	28	48	29·74	29·35
Saturday . 2	31	49	29·61	29·97
Sunday . . 3	27	42	29·87	30·16
Monday . . 4	28	49	30·24	Stat.
Tuesday . . 5	22	54	30·12	29·95
Wednesday 6	35	46	29·88	29·76

Prevailing winds, N. & S. W.

Except the 31st, and the 4th instant, generally cloudy, with frequent and heavy showers of rain, hail, and snow.

Rain fallen, 1 inch, and ·1 of an inch.

CHARLES HENRY ADAMS.

NOTICES.

The second and third parts of the communication from Glasgow have reached us.

Mr. M.—We must abide by our decision already expressed respecting the requisite condensation and arrangement.

R. M.—The wishes of our correspondent shall be attended to.

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, APRIL 16, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XXIX.

There yet remain some salts of potash for examination; and the next one which I propose to notice is the

Chlorate of Potash.

History and synonymes.—This salt (called also *oxymuriate*, or *hyperoxymuriate of potash*) was first prepared by Higgins, who seems to have confounded it with saltpetre; but in 1786, Berthollet distinguished them.

Preparation.—It is prepared by passing chlorine gas into a solution of subcarbonate of potash. The carbonic acid is expelled, while part of the alkali is decomposed; its metallic basis, uniting with chlorine, forms chloride of potassium, and its oxygen, combining with chlorine, forms chloric acid, which, with some undecomposed potash, forms chlorate of potash; which is separated from the chloride by its less solubility.

Re-agents.	Results.
$6\ \dot{K}\ \ddot{C}$	$6\ \ddot{C}$
$6\ Chl$	$5\ K\ Chl$
	$\dot{K}\ \overset{\therefore\cdot\cdot}{Chl}$

Berzelius gives a somewhat different explanation of the process, but I must refer those who wish for an account of it, to his work.

Properties. — It crystallises in pearly rhomboidal plates, the primary form of which is an oblique rhombic prism. Its taste is cool, and somewhat similar to nitre. At 32°, 100 parts of water dissolve only 3·3 parts of this salt.

Composition.—It is anhydrous, and consists of—

1 atom chloric acid	76
1 atom potash..........	48
	124

Impurity.—Chloride of potassium may be readily detected by adding a solution of nitrate of silver, which produces no visible change with a solution of the pure salt, but a white precipitate of chloride of silver, with any chloride of potassium that may be present.

Characteristic tests.—This salt is known to be a chlorate by the following characters:—when heated, it fuses, gives out oxygen, and is converted into chloride of potassium; if thrown on a red-hot coal, it deflagrates—a property, however, common to several other salts. Sulphuric acid gives it an orange red colour, evolves the peroxide of chlorine, known by its yellow colour, and great explosive power when heated. Rubbed with sulphur or phosphorus, it explodes violently. The base of the salt is known by the tests for potash, already mentioned.

Physiological effects.—Every atom of this salt contains six atoms of oxygen. Now, as it readily gives out this gas, if heated, it has been assumed, that when swallowed, the hydrogen and carbon of the system would deprive the chlorate of this principle; and, therefore, in various diseases, supposed to be curable by oxygen, this salt has been employed. But it has not been proved that oxygen is evolved in the system: for Wohler and Stehberger, in their account of the action of various diuretics, assert, that the chlorate passes off by the urine unchanged. In this respect, then, it is like the nitrate, which also contains six atoms of oxygen. Other

effects ascribed to the chlorate are not supported by strict observation. Thus, in 1818, Duchâteau stated, that eighteen grains, taken at thrice, caused convulsions, followed by delirium; but as these effects have not resulted, in other cases, from much larger doses, we cannot help suspecting some error. Diuresis is another effect ascribed to this preparation, and I believe justly. On the whole, this salt seems to operate in an analogous manner to the nitrate of potash.

Uses.—Chlorate of potash owes its introduction into use as a medicine, to hypothetical considerations. The beneficial effects of mercurials, in the venereal disease and liver complaints, were at one time supposed to depend on the oxygen which these preparations communicated to the system; and hence, substances containing a large quantity of this principle, as nitric acid and the chlorate, were regarded as valuable substitutes. Some diseases were supposed to arise from, or be connected with, a deficiency of oxygen in the system—for example, scorbutus and malignant cholera: here the chlorate, as an agent communicating oxygen, was thought to be indicated. In other cases, this medicine was employed on account of the presumed tonic effects of the evolved oxygen. In these, as well as in other instances which I might bring forward, chlorate of potash has been administered on erroneous principles, and, in most cases, with little advantage; and we have yet to learn its proper effects and uses.

Dose.— From fifteen grains to half a drachm.

Vegetable Salts of Potash.

Under this denomination I include those potash salts which contain a vegetable acid. Those employed in medicine are, the *acetate*, the *tartrate*, the *bitartrate*, and the *citrate*. They act very mildly, and, when taken into the stomach, appear to undergo partial digestion—for their acid is converted into the carbonic acid; and, after their use, the urine is rendered alkaline, and contains the carbonate of potash. Now this is a point of great practical importance,—for, in the first place, in that form of lithiasis attended with a deposit of lithic acid in the urine, instead of giving either a caustic or carbonated alkali, we may exhibit a much more agreeable and pleasant compound—I mean, the common effervescing draught, knowing that this will as effectually render the urine alkaline, as the caustic or carbonated alkali. But, in the second place, in the treatment of phosphatic deposits, these salts are to be carefully avoided; so that, although the patient may take, with benefit, bottled soda water (that is, an aqueous solution of carbonic acid), the soda powders (composed of tartaric acid and carbonate of soda) may not only be inefficacious, but absolutely hurtful. Alluding to the phosphatic deposits, Dr. Prout says, "were I required to name the remedy calculated to do the most mischief, I should name the common saline draught, formed of potash or soda, and *some vegetable acid.*"

1. *Acetate of Potash.*

History and synonymes.—It appears to have been first clearly described by Raymond Lully, in the thirteenth century, and has been known by several appellations, such as *terra foliata tartari, diuretic salt*, &c.

Native state.—Geiger, in his "*Handbuch der Pharmacie*," says this salt is found in some mineral springs; but I much doubt the accuracy of the statement. It probably exists in several plants, which, by incineration, furnish the carbonate of potash. The sap of the elm, Winter's bark, linseed, senna leaves, the rhizome of ginger, and various other vegetable matters, are said to contain it.

Preparation.—It is prepared by adding carbonate of potash (subcarbonate of the shops) to acetic acid obtained by the distillation of wood. The acid unites with the potash, and disengages carbonic acid. The liquid is to be evaporated, until a pellicle appears on the surface, so that when cold it may concrete.

Properties.—It is usually met with as a white solid, with a foliated texture, odourless, but having a pungent saline taste, and a soapy feel. It is exceedingly deliquescent, and, therefore, ought to be preserved in a well stoppered bottle. It is very soluble both in water and alcohol; indeed, in water, it is one of the most soluble salts we are acquainted with. At 60°, 100 parts of the salt will dissolve in 102 parts of water. When heated, it fuses and is decomposed into *pyroacetic spirit*, and *carbonate of potash*. One atom of this spirit contains the elements of acetic acid, minus those of carbonic acid.

Composition.—According to Dr. Thomson, this salt consists of—

1 atom acetic acid	51
1 atom potash	48
2 atoms water	18
	117

Purity.—It frequently re-acts as an alkali, owing to a little excess of potash. It should be perfectly colourless.

Characteristic tests.—As an acetate, it is known by its great solubility, and by the odour of acetic acid, evolved on the addition of strong sulphuric acid.

Physiological effects.—Swallowed in doses of two or three drachms, it causes purg-

ing, sometimes accompanied with griping. When taken in smaller doses, more especially if largely diluted, it acts as a diuretic, and slightly as a diaphoretic. In its passage to the kidneys it becomes decomposed, and converted into the carbonate of potash, which may be detected in the urine. Probably the pulmonary excretions of those who employ it also become impregnated with this salt, since it has been said that in persons with delicate lungs it acts as an irritant.

Uses.—In this country it is rarely employed, except as a diuretic in dropsical complaints. On the continent, however, it is administered in various other diseases, such as scirrhus of the pylorus, chlorosis, and visceral and glandular enlargements.

Administration.—It is given as a diuretic in doses of from a scruple to a drachm and a half, dissolved in some mild diluent. In larger doses, as already mentioned, it acts as a purgative.

2. *Bitartrate of Potash.*

History and synonymes.—In its impure form, as a deposit from wine, it must have been known at a very early period. "It is called *tartar*," says Paracelsus, "because it produces oil, water, tincture, and salt, which burn the patient as *hell* does." Scheele, in 1769, first explained its nature. Its synonymes are *cream of tartar, supertartrate of potash*, and *acidulous tartrate of potash.*

Native state.—It is a constituent of vegetables: thus it is found in grapes, tamarinds, cetraria islandica, and many other plants.

Production.—All the bitartrate of commerce is obtained during the fermentation of wine. It exists, as I have just mentioned, in grapes; but being insoluble, or nearly so, in water mixed with alcohol, it deposits during the fermentation of the juice of the grape—that is, when alcohol is produced; and it forms a crust on the sides of the casks, known in commerce under the name of *crude tartar (tartarus crudus)*, or *argol*, and which is termed *white* or *red (tartarus albus vel tartarus ruber)*, according as it is obtained from white or red wine.

Argol, or *crude tartar*, occurs in crystalline cakes of a reddish colour, and is composed of the bitartrate of potash, tartrate of lime (and sometimes racemate of potash), colouring and extractive matter, &c.

At Montpellier, bitartrate of potash is procured thus:—The argol is boiled in water, and the solution allowed to cool, by which a deposit of crystals is obtained; these are washed with cold water, and dissolved in boiling water, containing charcoal and alumina (clay); the latter substances being employed to remove the colouring matter with which they precipitate. The clear liquor is allowed to cool slowly, by which crystals of the bitartrate are formed.

Properties.—As met with in commerce, this salt forms a white crystalline mass, without odour, but having an acidulous and gritty taste. When carefully crystallized, the form of the crystals is a triangular prism, having dihedral summits, the primary form being a right rhombic prism. It is unaltered by exposure to the air; but when heated decomposes, swells up, various volatile products are evolved, and charcoal and carbonate of potash left behind, forming *black flux*. It is slightly soluble only in water. Thus at 60°, one part of this salt requires 234·6 of water to dissolve it. The solution decomposes by keeping.

Composition.—In the crystalline state it consists of

2 atoms tartaric acid (67×2) ····	134
1 atom potash ················	48
1 atom water ················	9
	191

Characteristic tests. — When heated, it swells up, gives out inflammable gases, evolves an odour analogous to caromel (burnt sugar), and gives, as a residue, charcoal and carbonate of potash; which latter, by solution in water, may be recognized as a potash salt by the tests before mentioned. Another character of this salt is its slight solubility in water—the solution reddening litmus. The addition of caustic potash to the water increases the solubility of the salt, whereas alcohol diminishes it. Acetate of lead added to a solution of the bitartrate, forms a copious white precipitate; lime water has the same effect. Mixed with alkaline carbonates, this salt causes effervescence. Boracic acid, or borax, very much increases the solubility of this salt in water, forming what has been termed *soluble cream of tartar.*

Impurity.—The bitartrate of commerce usually contains 5 or 6 per cent. of tartrate of lime. This, however, is of no practical importance.

It is sometimes adulterated with *sal enixum*, or the bisulphate of potash. This is easily detected, by dissolving a little of the suspected salt in water, and adding a solution of chloride of barium; which occasions a white precipitate of the sulphate of barytes, insoluble in nitric acid.

Physiological effects.—In large doses (as half an ounce) it acts as a cooling purgative, causing watery evacuations: hence it is termed a hydragogue. Like most of the vegetable acid purgatives, it is very

apt to excite flatulence and griping, and, by continued use, to disorder the digestive functions, and thereby to give rise to emaciation from imperfect nutrition. When taken in smaller quantities, and dissolved in water, it allays thirst, diminishes febrile heat, and increases the secretion of urine.

Uses.—On account of its gritty quality, it is employed as a tooth-powder. Various formulæ for dentrifices will be found in Jourdan's "*Pharmacopée Universelle;*" but I may state that a very good tooth-powder is made of equal parts of cream of tartar, powdered rhatany root, and myrrh.

As a purgative, the bitartrate is rarely employed alone. A mixture of about ten grains of jalap, and a scruple or half a drachm of cream of tartar, may be administered with advantage in dropsical affections. An electuary composed of this salt, sublimed sulphur, and confection of senna, is frequently used in skin diseases, in affections of the rectum (as piles, stricture, and prolapsus), in liver complaints, dropsy, &c. The *compound senna powder* of the London Pharmacopœia contains this salt, mixed with senna, scammony, and ginger: in doses of half a drachm, it is a useful cathartic. An effervescing aperient may be prepared by mixing 3 drachms of the bitartrate with $2\frac{1}{2}$ drachms of the carbonate of soda (the subcarbonate of the shops): the resulting salt is the tartarized soda.

Cream of tartar is most useful, as a refrigerant and diuretic, taken in solution, in the form either of imperial or cream of tartar whey. *Imperial* is formed by adding boiling water to cream of tartar, and flavouring with lemon-peel and sugar. *Cream of tartar whey* is made by adding about two drachms of cream of tartar to a pint of boiling milk, and, when cold, separating the curd by a strainer. Imperial is an exceedingly useful refrigerant drink in febrile complaints. The whey may be diluted with warm water, and taken in dropsical complaints. Some have proposed to add borax to cream of tartar, with the view of increasing the solubility of the latter salt; but no therapeutica. advantage is thereby obtained.

Dose.—As a purgative, this salt may be given in doses of from four to eight drachms; as a diuretic, from a scruple to a drachm.

3. *Tartrate of Potash.*

History and synonymes.—This salt was known to Lemery. It has been termed *tartarized tartar, tartarized kali, soluble tartar,* or *vegetable salt.*

Preparations.—It is readily prepared by saturating the bitartrate with the subcarbonate of potash.

Properties.—It is usually met with in the shops, in a granular state, but it may be crystallized; the primary form of the crystals being a right oblique angled prism. Its taste is saline, and somewhat bitter. It deliquesces when exposed to the air, and is soluble in its own weight of water at 50°; the solution decomposes by keeping.

Composition.—It consists of

1 atom tartaric acid	67
1 atom potash	48
	115

Characteristics.—When heated to redness, it is decomposed, leaving as a residue charcoal and carbonate of potash. A solution of the tartrate produces a white precipitate with a solution of sugar of lead,—also with lime water; the precipitates being dissolved by free tartaric acid. When heated, the salt evolves the odour of caromel. If an excess of any strong acid (as the sulphuric) be added to a solution of this salt, we obtain crystals of the bitartrate. The tartrate is readily distinguished from the bitartrate by its deliquescent property, its greater solubility, and its want of acidity.

Impurity.—It may contain excess of acid or base, either of which is easily recognized—the one by litmus, the other by turmeric.

Incompatibles.—Acids added to this salt, by abstracting part of the potash, cause the precipitation of the bitartrate. Tamarinds have the same effect.

Physiological effects.—This salt is a gentle purgative, analogous in its action to the sulphate of potash; from which it differs in being milder in its operation, and partially digestible; for, like the other vegetable salts of the alkalies, it is decomposed in the system, and converted into the carbonate of potash, in which state it is found in the urine.

It is said to have the power of preventing the griping of other more active cathartics—as senna and scammony; but, from my own personal observations, I doubt the correctness of this statement.

Use.—It is employed as a mild purgative in dyspepsia, at the commencement of diarrhœa, in some liver complaints, &c. Sometimes it is used as an adjunct to other more active purgatives: as the infusion of senna.

Dose.—It may be given in doses of from two or three drachms to half an ounce, or even an ounce.

4. *Citrate of Potash.*

Preparation.—This salt is not kept prepared. It is easily made when wanted

by mixing either citric acid or lemon-juice with the carbonate or bicarbonate of potash.

In the shops, a preparation called *lemon and kali* is kept, composed of sugar, dry citric acid, and dry bicarbonate of potash, but it is necessary to keep it in a well-stoppered bottle, since it abstracts water from the atmosphere.

The following are the proportions for making extemporaneously the citrate of potash:—

18 grains of citric acid .... ½ fluid ounce of lemon juice	saturate ℈j. of the subcarbonate of potash.
15 grains of citric acid .... 3½ fluid drachms of lemon juice	saturate ℈j. of the carbonate of potash.

Effects and uses.—The citrate is the mildest of all the alkaline salts. Taken in an effervescing condition, it is an excellent means of diminishing irritable conditions of the stomach. It promotes very slightly the secretions of the alimentary canal, the cutaneous transpiration, and the renal secretion; and, like other vegetable salts of potash, renders the urine alkaline.

Iodide of Potassium.

This salt, usually known in commerce as the *hydriodate of potash*, has been already spoken of, under the head of iodine.

The Sulphated Tersulphuret of Potassium.

History and synonymes.—Geber was acquainted with the solubility of sulphur in an alkaline solution; but Albertus Magnus taught the method of procuring sulphuret of potassium by fusion. The preparation kept in the shops is a mixture of the tersulphuret of potassium and sulphate of potash, and is called in the Pharmacopœia *sulphuret of potash*, and sometimes *liver of sulphur*.

Preparation.—One ounce of sulphur is fused with two ounces of subcarbonate (that is, the carbonate) of potash, in a covered crucible.

Theory.—The re-acting proportions are 10 atoms of sulphur and 4 atoms of the anhydrous subcarbonate. One atom of sulphur abstracts three of oxygen from three of potash, and forms one of sulphuric acid; which, with one of potash, produces one of sulphate of potash. Four atoms of carbonic acid escape: nine atoms of sulphur unite with the three of the potassium of the decomposed potash, and form three atoms of the tersulphuret of potassium. About 12½ per cent. of the subcarbonate is usually left undecomposed. If the heat employed be sufficient to decompose the whole of the subcarbonate, we then obtain a mixture of sulphate of potash and bisulphuret of potassium.

Re-agents.	Results.
10 S	$4\ddot{C}$
$4\dot{K}\ddot{C}$	3 (K + 3 S)
	$\dot{K}\dddot{S}$

Properties.—When fresh prepared, it has a liver-brown colour; and hence its name *hepar sulphuris.* Its taste is acrid, bitter, and alkaline. If quite dry it is inodorous, but when moistened it acquires the odour of sulphuretted hydrogen. Exposed to the air, it undergoes decomposition, from the action, not only of the aqueous vapour, but also of the oxygen. It becomes green and moist, and ultimately whitish. This change depends on the absorption of oxygen; so that two atoms of sulphur are deposited, while one atom of sulphur with one of potash form hyposulphite of potash: this becomes sulphite, and ultimately sulphate of potash, by the absorption of more oxygen. Sulphuret of potassium is soluble in water.

Composition.—If prepared according to the directions of the Pharmacopœia, this compound will consist of

3 atoms of tersulphuret of potassium	252
1 atom of sulphate of potash....	88
Carbonate of potash	31·5
	371·5

Characteristic tests. — Hydrochloric acid added to it, causes the evolution of sulphuretted gas: the solution of the sulphuret in water produces a black precipitate, with the solutions of lead, silver, bismuth, copper, &c. That it contains potassium may be determined thus:—Add excess of hydrochloric acid to a solution of it; boil, and filter. The before-mentioned tests for potash may be then applied.

Physiological effects.—In *large doses* this substance is an energetic poison; three drachms having proved fatal in the human subject within fifteen minutes. Locally it acts as a powerful irritant, and when swallowed produces an acrid taste, burning pain and constriction in the thoat, gullet, and stomach; vomiting and purging. But the nervous system also becomes affected, as is proved by the faintness, the almost imperceptible pulse—by the convulsions, and in some cases by sopor,—symptoms somewhat similar to those caused by sulphuretted hydrogen: in fact, this gas is copiously developed in the stomach. When administered in *small*

or *therapeutical* doses (as from six to ten grains) it acts as a general stimulant, increasing the frequency of the pulse, augmenting the heat of the body, promoting the different secretions, more especially from the mucous membranes; and sometimes exciting local irritation, marked by pain, vomiting, and purging.

Uses.—Externally it is dissolved in water, and used as a bath in chronic skin diseases, such as scabies, eczema, lepra, &c. For this purpose four ounces of the sulphuret will be sufficient for thirty gallons of the water. These baths are said to be particularly useful in the treatment of scabies in children. However, Rayer states that 20 baths are required to accomplish the cure. According to the same writer, in order that these baths should be successful, the patients should remain several hours in them, which, of course, is an objection to their use. Lotions in skin diseases are sometimes employed, containing a much larger quantity of the sulphuret.

Internally,—this salt has been administered for various purposes. Thus 5 or 6 grains dissolved in a pint of water have been used as a drink in cutaneous diseases. There are also many other maladies in which its employment has been advised; for example, Senf has lately recommended it as a substitute for calomel in those inflammations attended with lymphatic exudation, such as croup. Rheumatism, gout, affections of the glandular system, pulmonary disorders, are other cases in which it has been advised. It has been proposed as an antidote in cases of poisoning by arsenic, lead, copper, corrosive sublimate, &c.; and though it is not perhaps to be denied that in some instances the new compounds formed might be less poisonous than the old ones, yet the practice ought not to be followed, since the proposed antidote is itself a powerful poison.

Administration.—I have already spoken of the principal methods of using it. When taken internally, it may be given in doses of from 3 to 10 grains.

Antidotes.—In the event of any accident happening with this substance, the antidote for it is a solution of chloride of soda, or of chloride of lime.

SODIUM.

General Remarks. — This metal (called also *Natrium*, hence its symbol N), was discovered in 1807, by Sir Humphry Davy. It is procured from soda by precisely the same methods that potassium is obtained from potash. It agrees with potassium in several of its properties: thus, it is lighter than water (its specific gravity being 0·972 at 60°), and when thrown on water rolls about rapidly and decomposes this fluid, but it seldom takes fire, in which circumstance it differs from potassium; and when it does inflame, it burns with a yellow (not red, as potassium) coloured flame. By its action on water it becomes oxidized, and forms soda, which is left in solution.

Native state.—Sodium is met with in both kingdoms of nature. The chloride occurs in immense masses in the mineral kingdom: carbonate, borate, sulphate, and silicate of potash, occur either alone, or combined with other substances. It is met with in both vegetables and animals. But potassium is found in larger quantity than sodium in plants; and the reverse holds good with respect to animals, in which sodium preponderates.

Pharmacological compounds of sodium.—I shall briefly notice the following compounds of sodium.

1. The *protoxide of sodium*, (soda) and some of the *oxysalts* of soda.

2. *Chloride of sodium.*

Soda.

Synonymes.—The alkali, called also *natron*, is sometimes termed *mineral alkali*, in opposition to potash, which is called the vegetable alkali.

Preparation.—Caustic soda is procured from the carbonate by precisely the same process that caustic potash is obtained from the carbonate of potash.

Composition.—Soda in the pure anhydrous state consists of

1 atom sodium	24
1 atom oxygen	8
	32

Characteristic tests for soda and its salts.—The ferrocyanurets and hydrosulphurets occasion no precipitates. From the alkaline earths soda and its salts are distinguished, by not precipitating the carbonate of potash or of soda. From potash and its salts those of soda are distinguished by not being precipitated by tartaric or perchloric acids, nor by the chloride of platinum. Further, it is distinguished from both potash and lithia, by communicating a yellow tinge to the flame of alcohol.

The *physiological effects and uses* are precisely similar to those of potash, already fully described. Fourcroy thought that, as soda is contained in animals in larger quantity than potash, it was a better agent for medicinal use. This notion, which indeed is very plausible, does not appear to be supported by experience; for Sir Gilbert Blane, Mr. Brande, and others, assert they have obtained beneficial effects from the use of potash in calculous diseases, where soda has failed to give relief. Indeed, Sir Gilbert Blane has endeavoured to account for it, by supposing that the soda becomes

applied to the purposes of the economy before it reaches the kidneys, whereas the potash is carried to these organs with a view of being thrown out of the system.

Carbonates of Soda.

Three carbonates of soda are described, but only two are employed in medicine, namely, the carbonate (or mono-carbonate) and the sesqui-carbonate.

1. *Mono-carbonate.*

History and synonymes.—This salt has been known for a long period; sometimes being called *mild mineral alkali*, or *aerated mineral alkali*, or the *subcarbonate of soda*, the name by which it is at present designated in the London Pharmacopœia.

Native state.—It is found native at Delrezin, in Hungary, and Montenuovo, near Naples.

Preparation.—It may be prepared from *barilla*, from *kelp*, or from *common salt* (that is, chloride of sodium).

(*a.*) *From barilla.*—The substance called *barilla* is an ash obtained by the combustion of plants, principally belonging to the family *chenopodeæ*. They grow in the neighbourhood of the sea, and, according to Chevreul, contain the oxalate of soda, which, by combustion, is converted into the carbonate. *Alicant barilla* is said by Lagasca, in his Memoir on the *barilleras* of Spain, to be obtained from the *salsola sativa, chenopodium setigerum*, and some other species. *Narbonne barilla* is got from the genus *salicornia* (especially the species called *herbacea*). For the production of barilla the plants are cultivated, when ripe, cut, and dried in heaps, and then burned in holes in the ground. The fused ash constitutes the barilla. It is a hard, greyish or blueish mass, not deliquescent, having an alkaline acrid taste, and peculiar odour, and composed of carbonate and sulphate of soda, sulphuret and chloride of sodium, carbonate of lime, alumina, silicic acid, oxide of iron, and charcoal. The quantity of carbonate of soda varies: Alicant barilla contains from 25 to 40 per cent.

By boiling a pound of barilla (*soda impura* of the Pharmacopœia) in 4 pints of distilled water, filtering, evaporating, and crystallizing, we obtain the *sodæ subcarbonas* of the London Pharmacopœia.

(*b.*) *From kelp.*—When speaking of iodine, I alluded to the manufacture of *kelp*. This substance is obtained by the combustion of some of the *algæ*; the most valuable species for this purpose being *fucus vesiculosus, nodosus*, and *serratus, laminaria digitata* and *bulbosa, himanthalia lorea*, and *chorda filum*. In these plants the soda exists as the oxalate, and by combustion is converted into the carbonate. In the year 1830, Dr. Greville mentioned in his "*Algæ Britannica*," that probably 20,000 people were occupied with the manufacture of kelp in the Orkney Islands alone. At one time it fetched 22*l*. per ton, but now (that is, 1830), hardly 5 guineas can be obtained for it.

The constituents of kelp I have already mentioned *. The quantity of carbonate of soda which it contains is much inferior to that found in barilla.

Kelp is now of little value as a source of soda, being principally used for the production of iodine.

(*c.*) *From chloride of sodium.*—Of late years a large proportion of the soda of commerce is procured by the decomposition of sulphate of soda; and the resulting salt is denominated *artificial soda*. The process adopted varies in some of its details in different manufactories; but the following sketch will give you some idea of it. Sulphuric acid is added to common salt, by which sulphate of soda is obtained, while the hydrochloric acid gas is allowed to escape, not being worth the expense of collection. The sulphate of soda thus formed is mixed with small coal, (sawdust being too expensive) and heated in a reverberatory furnace. By this means the sulphate is deprived of its oxygen by the carbonaceous matter, and converted into sulphuret of sodium, which is roasted by a coal fire, and thereby converted into carbonate of soda, the sulphur being burned off.

In other instances, the sulphate of soda is decomposed by a mixture of chalk (carbonate of lime) and small coal, in a reverberatory furnace. The results vary with the proportion of the ingredients employed. At a large manufactory at Brentford, which I lately inspected, the proportions were nearly 2 parts sulphate, 1 part chalk, and 1 part coal. Now we can account for the products of the operation, by supposing that in the first place the heat causes a mutual re-action between the sulphate of soda and carbonate of lime, by which we obtain sulphate of lime and carbonate of soda: and that the coal decomposes the sulphate of lime, converting it into sulphuret of calcium. The mass resulting from this operation has a greyish appearance, somewhat similar to barilla, and is termed *English barilla*, or the *ball alkali*.

This is dissolved in water, by which the sulphuret of calcium and carbonate of soda, re-acting on each other, generate carbonate of lime and sulphuret of sodium. There is also in the solution (which is of a greenish colour) carbonate and sulphate of soda. The solution is evaporated to dryness, forming a dark or blackish mass, which is

* Lecture 224, Medical Gazette, vol. xvii. p. 834.

roasted in a furnace so as to convert the sulphuret of sodium into carbonate of soda. The resulting mass is dissolved in water, and crystallized in open iron pans.

In the northern parts of Great Britain, the manufacture of this substance is conducted on a most extensive scale: the manufacturers make their own sulphuric acid, which they employ to convert the common salt into sulphate of soda, from which they manufacture the carbonate. The muriatic acid fumes are allowed to escape to the great destruction of the surrounding vegetation, as I have already mentioned when speaking of hydrochloric acid.

Properties of carbonate of soda.—It is a crystalline solid, having a mild alkaline taste, and reacting as an alkali on turmeric and other vegetable colours. When exposed to the air it effloresces. Heated, it melts in its own water of crystallization, boils up, and becomes ultimately anhydrous.

Composition. — Crystallized carbonate of soda is liable to variation on two points—the quantity of water it contains, and the form of the crystal; the latter probably depending on the former. Dr. Thomson mentions four carbonates, containing respectively 1, $1\frac{1}{2}$, 8, and 10 atoms, of water. The Pharmacopœial salt, however, consists of—

1 atom carbonic acid	22
1 atom soda	32
10 atoms water	90
	144

And the primary form of its crystal is said by Mr. Brooke to be the oblique rhombic prism.

Adulteration. — Sulphate of soda, and chloride of sodium, are sometimes found in the subcarbonate of soda of commerce. The first is known by the addition of chloride of barium, which produces a white precipitate insoluble in nitric acid. If a chloride be present the nitrate of silver causes a white precipitate, insoluble in nitric acid, but soluble in ammonia.

Characteristic tests.—The means of proving the salt is a carbonate are the same as those employed for carbonate of potash, from which salt the carbonate of soda is distinguished by the tests for soda already detailed.

Physiological effects.—These are similar to the effects of the carbonate of potash; and as the carbonated alkalies act in an analogous (though milder) manner to the caustic alkalies, it would be work of supererogation to go over this subject again, after the remarks made when speaking of caustic potash.

Uses.—These are similar to the uses of carbonate of potash; however, you will recollect the probable greater efficacy of potash (caustic solution, or subcarbonate) than soda, in lithiasis. In some cases the carbonate of soda is preferred to the carbonate of potash, as being less deliquescent.

Administration.—The carbonate of soda may be given in powder or solution, in doses of from gr. x. to ℈j. If employed in the effervescing draught, the proportions required to saturate acids are as follows:—

15 grains of citric acid .... }
℥iijss. of lemon juice .... } will saturate $28\frac{4}{5}$ grains of the carbonate of soda.
15 grains tartaric acid .... }

If you wish to give this salt in pills, you must deprive it of its water of crystallization, as in the preparation called in the Pharmacopœia *sodæ subcarbonas exsiccata*; 54 grains of the anhydrous salt being equal to 144 of the crystals.

Sesquicarbonate of Soda.

History and synonymes. — Native sesquicarbonate of soda was formerly called *νίτρον*, and *nitrum*, and was confounded by the ancients with saltpetre.

Native state.—Under the name of *trona*, or *natron*, this salt is found abundantly in the province of Suckena, belonging to Tripoli. The walls of Cassar, an African fort, now in ruins, were said to have been built of it. The substance called *urao*, which occurs at the bottom of a lake, a day's journey from Merida, in South America, appears also to be this substance.

Preparation.—Under the name of carbonate of soda, a powder is sold in the shops for the manufacture of *soda powders*, which is a sesquicarbonate, and is prepared by dissolving six parts of the subcarbonate of soda, and four parts of the carbonate (or rather sesquicarbonate) of ammonia, in four parts of water, and evaporating until a pellicle forms.

Properties.—It is usually obtained in a pulverulent form; but Dr. T. Thomson states it may be obtained in crystals. It has a feebly alkaline taste, and is less soluble in water than the subcarbonate.

Composition.—It consists of—

$1\frac{1}{2}$ atoms carbonic acid	33
1 atom soda	32
2 atoms water	18
	83

Physiological effects.—Its effects are analogous to the other carbonates of soda, or to the carbonates of potash. Of course it

i less powerful in its local action than the simple carbonates.

Uses.—It is used in preference to the subcarbonate on account of the larger quantity of carbonic acid which it contains, and by which, therefore, it excites mere effervescence. It may be employed to form an effervescing draught, the proportions being as follows:—

15 grains of citric acid	will saturate $16\frac{2}{3}$ of the sesquicarbonate of soda.
℥iijss. of lemon juice	
15 grains of tartaric acid	

Bicarbonate of Soda.

If the directions given in the London Pharmacopœia for the manufacture of what is there termed *sodæ carbonas*, be strictly followed, the resulting salt is the *bicarbonate.*

Preparation.—It is prepared by passing carbonic acid gas through a solution of the carbonate of soda (subcarbonate of the shops), and crystallizing.

Properties.—This salt is distinguished from the other carbonates by not reddening turmeric paper, nor precipitating a solution of the sulphate of magnesia.

Composition.—It is said to be composed of—

2 atoms carbonic	44
1 soda	32
1 water..................	9
	85

The *physiological effects* and *uses* are similar to the last salt.

Phosphate of Soda.

History and synonymes.—As a constituent of the urine this salt has been long known, though its nature was for a long period not understood. It has been termed *alcali minerale phosphoratum*, and *sal mirabile perlatum.* In the shops it is frequently sold under the name of *tasteless salts.*

Native state.—It is found in the animal fluids, particularly the urine.

Preparation.—It is procured by adding carbonate of soda to a solution of phosphoric acid, obtained by digesting sulphuric acid on bone ashes.

Properties.—The primary form of the crystals of this salt is an oblique rhombic prism. Its taste is mildly saline. When exposed to the air it effloresces, and when heated loses its water of crystallization.

Composition.—According to Dr. T. Thomson it consists of—

1 atom phosphoric acid	36
1 atom soda	32
13 atoms water	117
	185

Characteristic tests.—That it is a soda salt is known by the different tests already mentioned for these salts. That it is a phosphate is known by the following characters: it precipitates the acetate of lead, and chloride of calcium, white; and the nitrate of silver, yellow. When made red hot it becomes the *pyrophosphate* of soda, and then precipitates nitrate of silver, white.

Physiological effects.—It acts as a mild saline purgative, chiefly valuable on account of its slight taste, and may be taken in broths almost unperceived. It is most analogous to the sulphate of soda in its operation.

Uses.—It is employed as a mild, almost tasteless, purgative for children and delicate females. On account of the phosphoric acid, it has been supposed particularly applicable to those cases in which there is a deficiency of phosphate of lime in the bones, and also in diabetes.

Dose.—From six drachms to one ounce and a half.

Sulphate of Soda.

History and synonymes.—This salt was discovered by Glauber, in 1658, and hence one of its names, *Glauber's salt*, or the *sal mirabile Glauberi.*

Native state.—It is found both in the inorganized and organized kingdoms. Thus the hydrous and anhydrous sulphate form two distinct mineral species. In the state of solution it is met with in many mineral waters; it is said also to exist in the ashes of those individuals of the *Tamarix gallica*, growing on the sea shore.

Preparation.—It is a product of some chemical processes: thus it is obtained by the sublimation of sulphate of ammonia with common salt, as also in the manufacture of muriatic acid, but the consumption of it being now enormous in the manufacture of carbonate of soda, it is obtained purposely by the addition of sulphuric acid to common salt. The theory of the process I have already explained under the head of hydrochloric acid.

Properties.—The primary form of the crystals of this salt is the oblique rhombic prism. The taste is bitter and saline. When exposed to the air it effloresces; and when heated, liquifies or dissolves in its own water of crystallization.

Composition.—In the crystallized state it consists of—

1 atom sulphuric acid	40
1 atom soda	32
10 atoms water	90
	162

Characteristics.—Its two constituents may be known by the tests already mentioned for sulphuric acid and soda.

Physiological effects.—It is a mild but efficient laxative, or purging salt, promoting secretion and exhalation from the whole mucous lining, without causing inflammation or fever.

Uses.—It may be employed as a common purge, either alone or added to other purgatives. It is applicable in fevers and inflammatory affections, where we want to evacuate the bowels without exciting the system generally.

Dose.—From six drachms to an ounce and a half. If it be dried, so as to drive off the water of crystallization, three and a half drachms of the powder will act as an efficient purgative.

CONTRIBUTIONS

TO THE

PHYSIOLOGY AND PATHOLOGY OF THE ANIMAL FLUIDS;

CONTAINING

Experiments and Observations on the Effects of certain Substances upon the Blood; on the Coagulation of the Blood; on the Difference between Membranous and Sanguineous Serum; on the Formation of the Buffy or Inflammatory Crust; on the Formation of Pus; on the Functions of the Lymphatic System; and on the Process of Sanguification.

By Andrew Buchanan, M.D.,
Junior Surgeon to the Glasgow Royal Infirmary.

[Continued from page 54.]

II.—*Reflections on the preceding Experiments.*

The reflections which the preceding experiments are calculated to suggest, are partly of a chemical, and partly of a physiological kind.

By far the most remarkable fact ascertained by the preceding experiments, is that when the serum of the membranes and the serum of the blood are mingled together, a coagulation takes place, during which a part of the mixed liquid passes from the liquid into the solid state, and assumes the form of a reticular membrane; or, in other words, passes from the state of liquid albumen, soluble in water, into that of fibrin, or insoluble albumen. Is there any thing in the chemical constitution of these fluids by which this coagulation can be accounted for on known principles? There is not, so far as I am aware. The similarity of properties between the serum of the blood and that obtained from the serous cavities is so great, that we should not readily expect any reaction to take place between these fluids. This similarity is much greater than the statement made in books upon chemistry would lead us to suppose. According to Berzelius, the serum of the serous cavities "may be considered as the serum of the blood, having the degree of dilution which ordinary serum would have, if mingled with seven times its volume of pure water."

This may be very true of hydrocephalic serum, from which, by a most unhappy selection, he seems to have deduced the general description he has given of the serum exhaled into the serous cavities. The assertion, however, considered as a general one, is very far from being correct. Another very erroneous assertion made by the same author, is that the liquid of the serous membranes "has always been found of a composition absolutely identical, whether it came from the ventricles of the brain, the pectoral cavity, from the abdominal cavity, or from the cavity that surrounds the testicles." On the contrary, there are at least three different kinds of membranous serum, differing from each other in qualities, and more especially in being more or less rich in albumen.

Of these three kinds of serum, the first and richest in albumen is that exhaled into the scrotal cavity, the peritoneal cavity, and the cavities of the pleura and pericardium. Next comes the fluid exhaled into the cells of the cellular membrane; and last, and least rich in albumen, is the arachnoideal fluid, or that exhaled into the ventricles of the brain and cerebro-spinal cavity. On each of these kinds of serum I shall offer a few remarks, chiefly in reference to the phenomenon here under consideration.

1st, *Serum from the great cavities of the trunk of the body.*—The serum obtained from the cavity formed by the tunics of the testicle, from the peritoneal cavity, and from the cavities of the

pleura and pericardium, seems to be always of the same kind, as might, indeed, be anticipated from the similarity of organization in the exhaling membranes. It is from the first-mentioned of these cavities that the serum is most likely to be obtained in the state in which it may be supposed to exist in the healthy body. The dropsical effusions which take place in the larger serous cavities are for the most part the effect of some severe visceral disease, by which the general health has been previously invalidated; whereas the dropsy of the testicle is a purely local affection, which may exist while the organs of digestion and sanguification are in the most healthy condition. It is, therefore, from hydrocelic serum that the general characters of this variety of serum ought to be deduced. It is a transparent liquid, of a light amber colour, and sometimes with a tinge of green; it coagulates into a solid mass on being heated; it varies in specific gravity, like the blood itself, according to the state of the general health. I tapped the same individual thrice, at the interval of some months. The first time the specific gravity of the serum was 1·0227; the second time it was only 1·0206, but he had then just finished a course of mercury, to which I conceived the impoverishment of the fluid to be owing. On tapping him, however, a third time, after he had regained his flesh and strength, the specific gravity of the serum was still less, being 1·0193. On the second of these occasions I had an opportunity of comparing the specific gravity of the membranous serum with that of the serum of the blood. Immediately after the man was tapped, I had some blood drawn from the arm, with the view of injecting the dropsical cavity either with the blood itself, or with the serum that separated from it, for the purpose of effecting a radical cure of the disease. The specific gravity of the serum of the blood was 1·0285, while that of the hydrocelic serum, as mentioned above, was 1·0206, the difference between them being only ·0079. In another case, in which I repeated the same experiment, the specific gravity of the serum of the blood was 1·0251, and that of the hydrocelic serum 1·0191; the difference, therefore, amounting only to ·006. The specific gravity of the hydrocelic serum is often greater than in the cases referred to, so that it is little inferior to the ordinary specific gravity of the serum of the blood.

It may, I think, be inferred, that in the healthy body, and probably also in the state of disease, the serum exhaled into the serous cavities we are here considering, is little inferior in specific gravity to the serum of the blood as it exists at the time when the exhalation takes place. In the state of disease, the specific gravity of membranous serum varies in all gradations downwards, till it becomes little heavier than water. I found the specific gravity of serum taken from the cavity of the pleura to be 1·0099, in a strumous subject dead of dropsy, after having undergone amputation of the thigh. In a woman tapped for ascites, the first time the specific gravity of the serum was 1·0094; and in a case in which I saw my friend Mr. George Watt tap a woman the 212th time for the same disease, the fluid drawn off was very little different from water. The specific gravity of the serum depends chiefly upon the quantity of albumen which it contains; and when the specific gravity is very low, the serum, instead of becoming solid on the application of heat, merely becomes milky.

It was with the serum obtained from the sources indicated above, that the coagulation took place most readily and completely on the addition of sanguineous serum. The phenomenon, however, as already mentioned, was not invariable. Sometimes the want of success seemed to arise from deficiency of albumen, as indicated by the low specific gravity of the liquid, and sometimes from putrefaction, the liquid having been too long kept. But as the experiment sometimes succeeded when putrefaction was far advanced, it is obvious that neither the coagulation of membranous and sanguineous serum, nor the secondary coagulation of the blood itself after the coagulum has been liquified and mixed with membranous serum, can be explained by calling it a vital operation—a form of words which some physiologists have deemed sufficient to explain the primary coagulation of the blood.

Sometimes, again, the want of success could not be referred to either of the causes just mentioned, but seemed to

depend upon a kind of elective affinity, whereby the serous liquids of some individuals harmonized together, and were easily blended into a coagulum, while those of other individuals shewed no tendency to unite. With respect to the time required to produce the coagulation, it was for the most part a slow and gradual process. I have seen the liquidity of the mixture unimpaired at the end of twenty-four hours, and in forty-eight hours the coagulation distinct. More generally, however, the coagulation was quite distinct in twenty-fours, often in a much less period; and on one occasion, when both kinds of serum were quite recent, having been taken from the body only a few hours before mixture, the coagulation took place in a few minutes, or in nearly the same time that the blood itself takes to coagulate. In no case, however, so far as was observed, did the coagulation take place at once, but, on the contrary, it often went on increasing during several days. I found that equal parts of the two liquids yielded a coagulum larger and firmer than when either of them was used in a double proportion; but I think it probable that in this respect much must depend on the relative qualities of the two liquids. Although most of the experiments above mentioned were made with venous serum, yet I may here mention, that after several failures I found arterial serum to comport itself exactly in the same manner.

Without entering into any speculation as to the cause of the phenomenon here under consideration, I may merely say, that I think it is probably one of those which the chemistry of the present day is incapable of elucidating. Nor is this the only instance of the animal fluids possessing a power of reacting upon each other of the most remarkable kind, which, nevertheless, eludes the scrutiny of the chemist. He cannot tell the difference between the laudable pus of an abscess which is innocuous in its qualities, and the pus of the small-pox pustule, which engenders a loathsome, and often a fatal disease; nor can he distinguish it either from the pus of a chancre, very different, but scarcely less formidable, in its effects.

2d, *Serum from the cellular membrane.*—The second kind of serum mentioned above is that obtained from the cellular membrane. It is scarcely possible to obtain this kind of serum in the state in which it may be presumed to exist in the healthy body. In cases of œdema, or mere local dropsy of the cellular membrane, we seldom draw it off; and when we do, it is necessarily mixed with much blood. Again, in cases of anasarca, or of general dropsy, from which it is easily procured, the bodily health is so much undermined, that the whole humours of the body are necessarily in a state of great attenuation. The serum obtained from the cellular membrane in these last-mentioned cases is a colourless transparent liquid, like water. It has little or none of the saponaceous feel so remarkable in the serum last described, and in that of the blood. It never becomes solid on being heated, but merely assumes a milky colour, or at most shews a few flocks and filaments. In only one case I tried its specific gravity, and found it to be 1·0081. I tried this serum with the serum from the blood of two different individuals, and also with some peritoneal serum; but in none of these instances did coagulation take place. The trials I made with another specimen were not attended with any better success; but it obviously does not follow from these experiments that the liquid of the cellular membrane, as it exists in the healthy body, is not capable of coagulation when mixed with the serum of the blood.

3d, *Arachnoideal serum.*—The serum obtained from the cerebro-spinal cavity, and from the ventricles of the brain, seems to be of the same kind. On the 20th ult. I obtained an ounce of serum from the ventricles of the brain, and about as much from the cerebro-spinal cavity. That from the ventricles of the brain was as limpid as water; it had no saponaceous feel, and on being heated it became opaline, but without in the least degree losing its liquidity; its specific gravity was 1·0098. The liquid from the cerebro-spinal cavity seemed to be exactly similar in qualities; but as it cannot be collected in any considerable quantity unmixed with blood, it was of a red colour; and to the same circumstance must have been owing its higher specific gravity, which amounted to 1·0156. In another experiment the specific gravity was 1·0123, but it also contained blood. The only difference of qualities that I could perceive, was

that the liquid of the cerebro-spinal cavity seemed to dissolve the blood, while that of the ventricles continued quite limpid, the blood settling at the bottom; but this was in all probability owing to the much greater quantity of blood in the former case. In several experiments made by mingling these liquids with the serum of the blood, an imperfect coagulation took place, while in a still greater number there was no coagulation.

4th, *Serum of blisters.*—It appears to me probable, that besides the varieties of serum mentioned above, there may be other varieties, which receive peculiar modifications in the vessels of particular tissues. I have often examined the serum obtained from the blisters which form on the surface of the skin, from the action of irritants like cantharides, or from burns or erysipelas. This kind of serum is transparent, and of a light yellow colour, like that obtained from the great serous cavities. It generally coagulates into a solid mass on being heated. The specific gravity of one specimen I found to be 1·0213, and of another 1·0219. It appeared to me from these properties to be probable that this serum would be of the same nature as that of the serous membranes, and I therefore anticipated that coagulation would take place on mixing it with the serum of the blood. In this expectation, however, I was deceived, as I ascertained by numerous experiments. On reflecting again that this serum was probably not produced by exhalation, but by effusion from ruptured vessels, I came to think that it might be more akin in its nature to sanguineous serum. I accordingly tried the effect of mixing it with membranous serum; and although the experiment was never made under very favourable circumstances, it several times succeeded partially. The success was most complete in an experiment made with the serum of an erysipelatous bulla, of specific gravity 1·0195.

There appears to me to be still another kind of serum, formed upon the surface of the skin, and which, probably, in the healthy state, is exhaled into the interstices of the rete mucosum, under the cuticle. It is impossible to obtain this liquid distinct from the former, and it is, therefore, only by a process of reasoning that we come to recognize its existence. It is well known that upon the surface of the skin, when denuded of the cuticle, there forms a fibrinous layer, or, as it is commonly called, a coating of coagulable lymph; this colourless coagulum, or fibrinous substance (for according to the views stated above, these terms should be considered as synonymous), I believe to result from the reaction of the two kinds of serum just mentioned.

An interesting observation made by Mr. Lumsden, to whose intelligent assistance I have been much indebted in the prosecution of these researches, tends to confirm this view of the origin of this substance. After evacuating the serum from a blister on the skin, he removed the cuticle; he removed also the fibrinous layer with which the surface of the cutis was covered, and pressing this substance between his fingers, as we do a wet sponge, he received the expressed liquid in the vessel containing the blister serum. The result was the formation of a colourless coagulum, which, had it been found on the surface of the skin, must have constituted an additional layer of coagulated lymph. In this way the whole liquid in blisters which are not opened, and do not suppurate, is often converted into a solid fibrinous coagulum.

It appears to me probable that coagulable lymph, or the plastic humor, as it has been named by M. de Blainville, has a similar origin, in whatever part of the body it be formed. The colourless coagula, or polypi, as they have been termed, often observed in the cavities of the heart, and some other analogous phenomena, to be mentioned hereafter, appear to me to indicate that a serous fluid is exhaled from the lining membrane of the sanguiferous system, which undergoes coagulation on being mixed with the serum of the blood.

[To be continued.]

110, St. Vincent-street, Glasgow,
March, 1836.

REMEDIES known and approved by Use and Reason, are to be preferred before such as are unknown, or but lately found out.—*Ambrose Paré.*

PHOSPHATES IN URINE—CAUSE OF THEIR DEPOSITION.

To the Editor of the Medical Gazette.

Sir,

Having observed in the Guy's Hospital Reports of this month some remarks on the cause of the deposition of the phosphates in urine by mere boiling, and having also noticed that the explanation which I have offered of this phenomenon, in my recent papers published in your journal, is objected to, I have been induced to institute the following experiments.

Some urine, depositing the mixed phosphates by standing, was found decidedly acid in its reaction on litmus paper at the moment of its emission; it was also clear, and of specific gravity 1007, very low. This, however, depended upon the diluted condition of the secretion, the urine having been voided shortly after breakfast.

1. Upon boiling a portion of this urine it became turbid, not unlike albuminous urine. The turbidity, however, was entirely removed by nitric acid. The urine remained acid after boiling.

2. A portion of the urine was allowed to stand for five or six hours undisturbed; small brilliant crystals of the triple phosphate manifested themselves on the surface of the fluid, and on the sides of the glass: the urine was still faintly acid. It was then left untouched in a cool place for two days: the deposition of phosphatic salts increased, and the urine exerted no appreciable action on litmus or turmeric paper.

3. A portion of this urine was then filtered and boiled. Scarcely any change was produced by heat.

These experiments lead me to believe, that during the exposure of the urine to the atmosphere, something was given off which had previously held the phosphates in solution. Now phosphoric acid could not escape, it being a fixed acid. The only agent which is volatile, and a solvent of the earthy phosphates, found in urine, is carbonic acid. When I make use of the term volatile, I mean capable of passing into the atmosphere at the ordinary temperature. It did not depend upon the formation of ammonia, because the fluid was not alkaline, nor capable of evolving ammonia by mere heat. This urine, however, as does almost all phosphatic urine, became alkaline after having been kept for several days. The fact, also, of this urine becoming exceedingly turbid when first passed, by boiling, and after standing some time being scarcely or not at all affected by heat, confirms the opinion, that the deposition was the result of the evolution of carbonic acid.

A. Some urine of the same description, and recently voided, was placed under a receiver, full of hydrogen, with a shallow glass capsule, containing lime-water; the gas was confined by means of a saturated solution of common salt, boiled so as to drive off any gaseous matters contained in it: a concentrated solution of common salt will absorb little or no carbonic acid.

B. The same quantity of urine was placed under the same circumstances, common atmospheric air being used instead of hydrogen gas. After two hours, or thereabouts, the urine placed in the hydrogen was found turbid, and the lime-water contained on its surface a film of carbonate of lime; that which had been placed in mere atmospheric air was unchanged.

These experiments clearly prove, that a solvent had been removed in the one case, and not in the other, and that this solvent was carbonic acid,—the agency of heat having been entirely dispensed with.

It has been objected to the opinion I entertain, that carbonic acid is the solvent in such cases, of the phosphatic salts, that urine yielding this deposit by boiling is more acid after than before ebullition, and certainly the fluid, when hot, seems to redden litmus paper more readily than when cold. I believe, however, that this depends upon the fact, that a hot fluid permeates more readily the tissues of the test paper, and, consequently, comes more in contact with the colouring matter with which the latter is imbued; for, if the boiled urine be allowed to become cold, it does not then redden litmus paper more distinctly than it did before boiling: the following experiments go to show, that the urine does not in these cases contain more, but in many cases less, free acid after than before boiling.

1. A given measure of urine, yielding the phosphates by boiling, was heated with tincture of litmus, so as to become distinctly red; to this a weak solution of caustic ammonia was added guttatim, by means of a dropping tube, containing a fine capillary bore at the end of it: the number of drops necessary to render the fluid blue were five.

2. Another equal measure of the same urine was boiled, and the loss sustained by evaporation supplied by distilled water: when cold, litmus tincture was added to redden it. Ammonia was added guttatim: two drops were found sufficient not only to destroy the red colour, but even to give the fluid a slight green tinge.

3. Healthy urine was treated in the same manner; thirteen drops of a solution of ammonia were found necessary to render the reddened fluid blue, in the case where the urine had not been previously boiled, and only eleven in the case where that operation had been performed: these experiments were repeated with different specimens of urine: in some cases, the quantity of ammonia necessary to restore the colour to reddened litmus was nearly the same both before and after boiling; in the majority of cases, however, a smaller quantity was necessary after boiling, and in no one case was more required after than before boiling.

The explanation which has been offered, both of the cause of the deposition of the phosphates by mere heat, as well as of what is called the superior acidity of such urine after boiling, in the Hospital Reports before alluded to, the Editor considers as quite satisfactory; I cannot, however, agree with him in this particular. He there states, upon the authority of Mr. Rees, that the muriate of ammonia is the solvent agent, and that boiling causes the phosphates to be thrown down from their solution in the above salt, and that the urine is more acid, in such cases, after boiling, from the decomposition which the muriate of ammonia suffers—a portion of the volatile base of that salt being driven off by heat.

With respect to the power which muriate of ammonia possesses over recently precipitated phosphate of lime, that is, and has been long, well known and universally acknowledged; and it is also known that, under *certain conditions*, heat causes a precipitation of the phosphatic salt from such a solution. I find, however, from my own experiments, that if the muriate of ammonia be in excess, no precipitate of the phosphate is affected by boiling, also if any notable proportion of free muriatic acid be present. But muriate of ammonia is not singular in this property of dissolving recently precipitated phosphatic salts. Muriate of potass, or soda, possess the same property, as do also the nitrates and acetates of the same bases, the latter in a less degree however. Now in the latter cases it is manifest that mere heat cannot decompose the solutions of the salts, and muriate of ammonia, as I shall presently shew, is not decomposed by boiling its solution in water; the phosphatic salts are not, therefore, precipitated, because of the decomposition of their solvents.

It is well known to chemical analysts, that certain acids and bases may exist together in a fluid, under certain circumstances, without forming insoluble salts until heat is applied; thus, a weak solution of phosphate of ammonia may be mixed with a diluted solution of a magnesian salt, without any precipitate taking place, at least for some time; the application of heat, however, immediately causes a deposition of the triple phosphate; the same thing obtains when phosphate of soda is employed instead of phosphate of ammonia. Again, a weak solution of an alkaline sulphate causes no precipitation in a diluted solution of a calcareous salt until heat be applied, when, immediately, a precipitate of sulphate of lime ensues. Now, in all these cases, the deposit takes place by the mere agency of heat, without the loss of any solvent, and in these instances, as well as in the case of the phosphates being thrown down by mere heat from their solution in certain alkaline salts, the phenomena are due, not to the decomposition or removal of any solvent, but to the increased temperature to which the fluids are exposed, causing the particles, constituting the insoluble salts, to come more closely together, by virtue of an increased chemical attraction. But to return to the question,—do the earthy phosphates exist, in certain specimens of urine, in such a state of solution in muriate of ammonia as to be precipitated by the application of heat? That such a state of things may occa-

sionally prevail, I would not deny, but I confess that I do not believe that this explanation is correct in any of those cases in which urine suffers the phosphates to deposit by repose, and also yields a further deposition upon the application of heat; for, in the experiment related just now, in which phosphatic urine, after remaining two days at rest, yielded little or no deposit upon boiling, although, when first voided, a copious precipitate was caused by heat, mere atmospheric exposure could not have removed any muriate of ammonia, and, therefore, heat ought to have caused the deposition to take place, after the urine had remained for two days at rest, as fully as it did at the moment of its emission, supposing always that no free alkali had been generated; and that this urine was found acid after exposure for some hours, and certainly not alkaline after remaining exposed for two days, renders it improbable that any free alkali or alkaline carbonate had been formed. In the experiment, too, in which the urine was placed under hydrogen, it is quite impossible to believe that the muriate of ammonia was the solvent; indeed, we have the clearest evidence that it was carbonic acid. I shall say but a few words, which, I think, will be sufficient to show, that the belief that such urine, or indeed any urine, actually contains more free acid after than before boiling, is unfounded, and at variance with the results obtained by direct experiment; indeed, the experiments with tincture of litmus sufficiently point out the fallacy of this opinion, and therefore the fact itself being disproved, the hypothetical deductions must fall to the ground.

It is, however, advanced in explanation of this assumed condition of the urine— viz. its increased acidity after boiling—that a portion of ammonia is driven off: it remains to show how far this statement is borne out by experiment.

1. A saturated solution of muriate of ammonia was boiled in a flask with a long narrow neck, in which a portion of turmeric paper was suspended; although the ebullition was continued for some time, the turmeric paper was not in the slightest degree reddened.

2. A diluted solution of muriate of ammonia was treated in a similar way, with the same results.

3. A portion of muriate of ammonia was placed, *per se*, in a flask, and heat applied, until a considerable portion was sublimed; no ammoniacal vapour was evolved, the turmeric paper not being acted upon.

4. A solution of muriate of ammonia, holding the earthy phosphate in solution, was boiled in the same way, and, although the latter salt was precipitated, no ammonia was evolved.

It is, therefore, clear, that muriate of ammonia does not part with any of its base, either at a boiling temperature, or even at a temperature sufficiently high to cause it to sublime; neither does the presence of the earthy phosphate cause an evolution of the ammoniacal base.

I find, also, that the bi-phosphate of ammonia, (it is this combination of the acid and base which exists in urine,) does not part with any of its ammonia at a boiling temperature, the base being evolved only at a temperature necessary for the fusion of the salt. To sum up,—from these experiments, as well as from those formerly published, I am disposed to conclude—

1st, That in all cases where the phosphates are deposited, either by simple repose or by boiling, from urine remaining *acid*, that such a deposition is caused by the removal of carbonic acid, which acted as the solvent.

2dly, That under certain conditions of the urine, it is not improbable, but far from being clearly proved, that the phosphates may be held in solution by muriate of ammonia, or even by muriate of soda, and that heat causes them to be precipitated from such solutions.

3dly, That urine does not, under any circumstances, contain more free acid after than before boiling.

By inserting these remarks, you will oblige,

Your obedient servant,
R. H. Brett, M.R.C.S.

1, Upper Sussex Place, Old Kent Road,
April 7, 1836.

Though the disease prove long, yet it is not fit the physician give over the patient. —*Ambrose Paré.*

You shall comfort the patient with hope of Recovery, even when as there is danger of Death. —*Idem.*

ON THE AGENCY OF IODINE IN ULCERATION.

To the Editor of the Medical Gazette.

Sir,

I will thank you to insert, in your next number, the following remarks on the agency of iodine in ulceration, elicited by a critique in the Messrs. Johnson's Review for this month, page 413.

This valuable remedy, which has of late years been added to our list of remedial agents, exerts a peculiar influence in checking that form of inflammation that leads to ulceration. Its efficacy in controling this action has been so extensively demonstrated in the wards of our hospital, and its virtues in enabling tissue to resist ulcerative action have been so fully tried and acknowledged, that I had almost regarded this action of iodine as settled beyond dispute. Still less should I have thought of making it the subject of a distinct notice, as I considered its action too well known and understood to require the attention of the profession to be drawn to so notorious a fact in therapeutics.

A long course of experience having impressed me strongly in its favour, I should have remained in a state of ignorance, as it seems, of the general opinion entertained of the action of iodine, had not one of our intelligent pupils directed my attention to a startling paragraph in Dr. Johnson's Medico-Chirurgical Review, for April last. It occurs in a critical review of my paper on the subject of ulceration of cartilage, in the last volume of the Transactions of the Royal Medico-Chirurgical Society. My observations, that called forth this critique, are these :—

" It is difficult to explain or to reconcile the action of some remedies, with the supposition of absorption being concerned in ulceration. One of the most powerful remedies that we possess, and that exerts a remarkable control over the ulcerative process, is iodine. The most active phagedænic ulcers, that threaten the destruction of parts, are often found to yield, in a surprising manner, to the influence of this medicine, and to put on a healthy granulating appearance: and yet iodine is thought to act powerfully in increasing the action of the absorbents; tumors of considerable size often yielding to its action, and being absorbed. How is it that, in the healing of an ulcer, it checks and puts a stop to the absorbing process, and, in the case of a tumor, quickens the action of the absorbents and gets rid of the mass? Here are two actions of a remedy opposed to each other, and inexplicable, so long as ulceration is regarded in the light of absorption. In the same person, and often on the same limb, we see the beneficial effects of iodine in the arrest of a spreading cachectic ulcer, and the absorption of a venereal node or periosteal effusion; two actions that present a paradox to those who view ulceration as effected through the agency of the absorbents. But the action of this and other remedies that arrest the progress of ulceration is effected through another medium than the absorbents; it would seem to depend on some additional nervous or vital power imparted to the ulcerating surface, by which its vital energies are reinforced, and which enable it to resist those repulsive forces that tend to disorganize it."

On this the reviewer makes the following strictures:—

" If Mr. Key could prove that iodine was a great promoter of absorption, and at the same time one of the most efficient agents in checking rapid ulcerative action, we should admit that there was plausibility in this argument. But we differ, *toto cælo*, from Mr. Key, in his very premises. We deny that iodine is an efficient remedy in cases of phagedænic ulceration. Nay, we will go farther, and affirm, as a general fact, that iodine is one of the very worst remedies that could be administered in phagedæna. Our readers must observe that phagedænic ulceration may occur in circumstances diametrically opposite, —in a state of system requiring depletion, and in a state of depression and extreme irritability. The former, so far as we have seen, is the exception, the latter the rule. It is possible that in the former, iodine may now and then be beneficial. We are certain that in the latter, opium, the volatile alkali, stimuli, are the remedies to which the surgeon must trust. These are the remedies that build up, rather than pull down; and as reason suggests their use, experience justifies it. On this point

we can speak with the positiveness of careful and extensive observation; and here, on the premises of the argument, we are opposed to our author."

The uncourteousness of the reviewer, in denying a fact which I have advanced in testimony of the powers of iodine, is the first complaint that I have to make against him. Had he confined himself to the denial of any matters of opinion, or of any inference from the facts that I might have stated, I should have left him peaceably in the enjoyment of his own peculiar views. But his denial extends to the facts that I have advanced: he denies what I state as a matter of fact, and not of opinion—that iodine is an efficient remedy in checking ulceration. In his ardent desire to write me down, he is not content with restricting his opposition to my views of ulceration, but places me (I trust inadvertently) in the position of a person desirous of maintaining his peculiar views by falsifying facts, and bending them to his purpose.

Had I been aware that there existed any person, calling himself either physician or surgeon, ignorant of this peculiar property of iodine, I should, at the risk of being tedious, have mentioned some facts and cases, out of the many that I have witnessed, in the paper that I read before the Royal Medico-Chirurgical Society. But conceiving that a detail of such well-known properties was only adding to the length of the paper, and nothing to its illustrations, I was content with the simple statement of the power of this remedy; or, if I could have supposed that what was well known to every six months' pupil of our hospital, could possibly be unknown to a learned body like the Royal Medical Society, I should have detailed at length the facts on which my statement was founded. A reviewer, however, appears to be altogether of a different genus—a *tertium quid;* and never thinking of addressing my observations to him, I have failed to make that allowance for his backwardness in the science of the day, which appears to be necessary. It is my purpose now, in part, to supply that deficiency, and to free myself from the reviewer's implied charge of advancing what is unfounded in fact.

"If Mr. Key could prove that iodine was a great promoter of absorption, and at the same time one of the most efficient agents in checking rapid ulceration, we should admit that there was some plausibility in his arguments." This is his statement of the problem to be solved—the Q. E. D. of the reviewer. I believe that a simple affirmation of such cases having been admitted under my care in Guy's Hospital, and cured by the action of iodine—of such cases having been witnessed by the gentlemen attending the surgical classes, as well as by many of my colleagues—would be sufficient to establish the fact in the estimation of my professional brethren. The reviewer will not, perhaps, be hardy enough to make as light of their testimony as of my assertion. For a very long period I have been in the practice of using iodine in phagedænic ulcers, both in hospital and in private practice, as a remedy on which great reliance can be placed. Indeed, for several months together I employed no other remedy in the treatment of these ulcers, in order to ascertain in what form of sores its action was beneficial; and there was scarcely an instance of cachectic spreading ulcer that was able to resist the healing power of this medicine. It is not only a good remedy, but, I think I may say, next to opium, the most useful and the most certain in its effects. It is in that kind of ulcer termed, from its destructive nature, phagedænic*, that its action is best displayed. By phagedænic, I understand that kind of sore in which inflammation is speedily followed by ulceration; in which the vital powers of a part are so enfeebled by a cachectic condition of the frame, that as soon as inflammation attacks the skin and cellular membrane, they break down and become disorganized. This action differs from sloughing, in the texture not dying till it passes into a fluid state: in sloughing, the integrity of the skin is preserved, while its vitality is passing away; it therefore sloughs as a mass: in ulceration, on the contrary, the tex-

* To prevent any disputatious objections to my interpretation of the term phagedænic, as applied to an ulcer, I beg to refer the reader to my original use of it in the paper in the Medico-Chirurgical Transactions. It is quoted at the commencement of the present remarks. It will be evident that I there employ the term to exemplify the irritable spreading ulcer, in which iodine enables the natural powers to resist the ulcerative action, and to reconstruct the texture that is lost.

ture is softened down by a living action, and a fluid depôt is the result of the change. It is to this form of ulceration that the action of iodine is opposed; it is this kind of disease which iodine arrests. Ulceration and sloughing are not unfrequently seen together in the same destructive sore. In the soft palate of the female, in which a few hours would seem to make a difference in the destructive progress of a phagedænic ulcer, I have seen iodine arrest the ulcerative action, and in forty-eight hours cover the sore with healthy granulations. I make these assertions, knowing that these cases have been witnessed by many who can speak to their truth, and that the cases are not few in which these powers of iodine have been publicly displayed. In rapidly spreading ulcers of the face and leg, even when combined with a disposition to slough, occurring in persons whose constitutions have been enfeebled by dissipation, the same sanative power has been repeatedly seen in the wards.

"We differ *toto cœlo* from Mr. Key in his very premises. We deny that iodine is an efficient remedy in cases of phagedænic ulceration; nay, we will go farther, and affirm, as a general fact, that iodine is one of the very worst remedies that could be administered in phagedæna."

The gentleman who penned this paragraph is evidently a person of very small experience; one who has gathered his notions of the action of iodine from the bugbear tales of a former age, in which we heard nothing of its effects but absorption of the testicles of the male, and the mammæ of the female. With emaciation and other horrors, I had imagined that all these idle stories of iodine were confined to old women of other days, and that boys now threw them aside with their nursery books. Perhaps the reviewer is too young and inexperienced to have done with the latter, and therefore entertains an infantile horror of the effects of iodine. If this be the case, I would advise him speedily to extend his experience, and, in the interim, to pause before he ventures to doubt and denounce the assertion of more experienced persons, in respect to any remedy the benefits and action of which he may have yet to learn. Where this young gentleman has passed his time since the period of his pupillage is not easy to divine; certainly not in a metropolitan hospital, for there can scarcely be one that does not, like Guy's, afford abundant evidence to give a direct negative to his assertion; he is, indeed, far behind the practical knowledge of his own times. It may be that he passes his time in the recess of his closet, learning the art, or the mystery, of reviewing. Practical surgery is one thing, reviewing another. Let me assure him that the latter is a bad school for learning his profession practically, or even for acquiring liberality of feeling. I speak not from personal experience in reviewing, as I never wrote a review; but I judge, as in the present instance, from the fruits of those who do.

"Phagedænic ulceration may occur in circumstances diametrically opposite, in a state of system requiring depletion, and in a state of depression and extreme irritability. It is possible that in the former iodine may now and then be beneficial. We are certain that in the latter, opium, the volatile alkali, stimuli, are the remedies to which the surgeon must trust." Here, again, the reviewer is quite wrong in his description of cases to which iodine is applicable. "It is possible," he says, "that in the former, that is, in phagedænic ulceration occurring in persons requiring depletion, iodine may now and then be beneficial." I believe that I speak the sentiments of all who are conversant with the use of this medicine, in saying that these are precisely the cases in which it is found to be prejudicial. Iodine, when used properly, is a powerful stimulant and tonic; it excites the pulse, and increases its volume; it stimulates the stomach, increases the appetite, and fattens the patient; it gives tone to the extreme vessels and nerves of an ulcer, and prevents the inflamed texture being destroyed by ulceration. We should expect, therefore, that a medicine possessing these powers would not exactly be the remedy to be depended upon in persons requiring depletion; and we find that experience, as well as principle, forbids its use in such cases. I have tried it in all varieties of constitutions, and it is in those persons especially who have inflammation of the tonic character, that it is to be avoided. It is in sores attended with subacute inflammation, requiring depletion, that iodine pro-

duces its worst effects. Like all valuble remedies, it may be pushed to extreme, and may do harm. In persons labouring under slight inflammation requiring depletion, if persisted in, it quickens the pulse, flushes the countenance, produces dryness and a sense of heat about the fauces, uneasiness in the stomach, and a parched state of lips. Erythema of the gastric mucous lining probably follows its use in these cases; and gradually emaciation, with pyrexia, is the consequence. The local affection, as might be expected, is not improved by it, when such proves to be its action on the constitution. Again, it is in the very cases in which the reviewer denounces it that I find it to be a most useful remedy. In cases of ulceration, combined with depression and irritability, I use it most extensively, and with a result that entitles it to rank among our best remedies, for its sustaining powers. It is in constitutions worn down by depressing causes, when the skin is pallid, the tongue flabby, the pulse feeble, the nervous system tottering and irritable, that the building-up powers of iodine are seen to most advantage. I find it more efficacious in healing such ulcers in such constitutions than even the volatile alkali, or bark, or opium.

Mr. Edward Cock, who prescribes for the surgical out-patients, also assures me, that he finds iodine an almost indispensable remedy in phagedænic ulceration, and one on which he places the greatest reliance.

The conclusion that I naturally come to, is, that the reviewer, notwithstanding "he speaks with the positiveness of careful and extensive observation," and with the usual volubility of a professed writer, and with equal positiveness denies my statements of the efficacy of iodine, is, in truth, wholly unacquainted with the action of this remedy in ulceration.

A FEW words more, before I have done with Messrs. Johnson, and their review. It may be thought by some, that I had better omit what I am about to say; but not being desirous of recurring to so ungracious a subject, I will take the opportunity of making a remark or two on the other parts of their critique on my two last papers in the Med. Chir. Transactions.

Throughout the whole of the two notices which they have bestowed on my papers, there is manifested such a desire to run down my views, and the arguments by which I endeavour to support them, that on several occasions their hostility has been pointed out to me by persons who have been struck by their unfairness. Indeed, one friend prepared me beforehand for the attack, and assured me that they would be severely handled in the forthcoming number of the Med. Chir. Review, because—they were opposed to some of the opinions of Sir Benjamin Brodie.

Severly handled, indeed, they have been—sifted, I should have said: on looking into the review, I find the expression is "closely sifted." "Mr. Key's arguments seem, when closely sifted, to be these." Closely sifted, with a vengeance—so closely sifted, that the reviewer has ingeniously managed to let fall all the grain, and retaining the chaff, exclaims, here is the sum and substance of Mr. Key's arguments. Throughout the whole of the two reviews in question, there is not a single line of approbation—not one word, or one idea, in which the reviewer is pleased to concur. The whole he denounces, from beginning to end. Neither the facts nor the arguments please him; all must be written down—all is written down—and all because—my views do not agree with those of Sir B. Brodie.

An indifferent person might suppose that two (not short) papers made up of pathological facts and arguments derived from a variety of sources, could not fail to contain something, however unimportant, which might fall in with the reviewer's notions of fitness; and that, if I had not been fortunate enough to advance many facts or arguments possessing force or soundness, I might, by accident or by mistake, have stumbled upon something like sense and reason. But no—the reviewer cannot find a single ray of light throughout the two papers. All is denounced as darkness and error; my facts are denied, or doubted; my arguments are perverted and obscured; the reviewer cannot find a single word or idea to applaud, because—it would be heresy to see any merit in arguments ever so little opposed to the opinions of Sir Benjamin Brodie.

"The free discussion" in which the

reviewer indulges, and for which he says no apology is due to me, consists in, first, "closely sifting" my arguments in his own peculiar sieve, and then presenting them to his readers in the dress he chooses to give them. And I will do him the justice to to say, that he has managed most ingeniously to preserve the appearance of impartiality, and to rob of its point and force, all that I have advanced. The adroitness of the manœuvre might almost compensate for the want of ingenuousness, if good faith and folly were acknowledged as twin virtues. But the world is not so degraded—we are not yet arrived at that point in morals—as to identify them; and the distinction, unfortunately for the reviewer, is still recognized. To have treated me with fairness would not have answered his purpose; he must have admitted some of my statements to have some shew of probability; but his measure of approbation never rises so high. Even a cold acquiescence is withheld: he goes no nearer to the point of commendation than to say, that if so-and-so had been proved, "then, but not before, we will admit that there is *some** force in his argument." To have admitted more than this (he could not well admit less) would, in the liberal reviewer's estimation, have detracted from the merits of Sir Benjamin Brodie.

Having, as he says, first "closely sifted" the arguments, and having pretty well got rid of the grain which might, by its weight, have embarrassed him, at the conclusion of the review he submits it, *i. e.* the chaff, to a second mechanical process—that of the screw. After giving what he is pleased to term a review of my arguments, he condenses it, *i. e.* the chaff, by a process of compression. "Let us turn," he says, "to the application of the preceding arguments. It seems, when compressed, to amount to this." Now it requires not a conjuror to say what closely-sifted chaff, well compressed, probably in a screw-press, will amount to in weight, nor what compass it will occupy after undergoing this process. The instruments are ingeniously contrived for reviewing, and are well adapted to reduce the bulk and weight of facts and arguments; and the Messrs. Johnson will do well to secure a patent for their sieve and press, because, if they will answer no other purpose, they will be useful in their hands for sifting and condensing the writings of all who dissent from the doctrines of Sir Benjamin Brodie.

The question that I put to my friend will naturally be asked by any one who reads this—Why do the Messrs. Johnson covertly oppose and try to stifle the voice of those who trespass, unwittingly it may be, on the ground which Sir Benjamin Brodie has passed over? When my first paper appeared in the Transactions, I was warned of what I had to expect from this review, and I inquired why they should direct their artillery against me, who had never written one word against them, nor used an unkind expression, nor, to the best of my knowledge, ever given them cause of offence. "Oh," was the reply of my friend, "they will not attack you openly by abusing you—they will only write you down, and quietly strangle you. You have dared to write on the subject of joints, and the reviewer, to render himself acceptable, as he imagines, to Sir Benjamin Brodie, will not allow a word to stand that has the semblance of opposition to his views." Still I remained unenlightened, and again asked him the reason of the Messrs. Johnson devoting themselves to the defence of this distinguished surgeon. "Then you are unacquainted with the tactics of the Johnsons?" I confessed my ignorance, and said, that living so far to the eastward, I was but little acquainted with the politics of the profession and its journals. "I will give you a little insight into their tactics: they are perfectly well known to us of the West; we care nothing about them, and still less think of replying to their strictures, as we think them ignoble game." I did not understand what he meant by this last expression, which I thought sounded odd; and he gave me no time to inquire, but began to initiate me in the mystery of the review, which I was not a little anxious, I confess, to fathom.

"You must know, then, that one of the Messrs. Johnson is a candidate in future for the honours of the profession, and is an *attaché* in some shape to a school lately established in the far West. To both these objects he makes his review subservient, and for both he

* This word is printed in italics in the review.

wishes to have the assistance and support of Sir Benjamin Brodie. You will observe that in all his reviews he is careful, most careful, to drop nothing from his pen at all likely to annoy that eminent surgeon, but seizes every opportunity of applauding, *un peu fort*, it may be, whatever comes from his pen or from his lips, and of victimizing all who are guilty of *lèse majesté*. You are guilty, and will make a good subject to offer up at his shrine; depend upon it you will be broken upon the wheel,—quietly enough, perhaps,—for they will take care to stifle your cries; but your fate is decided. Your *disjecta membra* will then be offered up as a sacrifice; or perhaps you will be smothered *en masse* (doubtless prophetic of the screw-press), and afterwards offered as a holocaust on the reviewer's altar of adulation." Here the dialogue ceased, for I was struck dumb with amazement at the atrocity of the sacrifice, and perhaps not a little with horror at my impending fate.

Here, then, lies the cause of the unhappy fate (as far as the review can seal it) of my papers on ulceration,—herein consists the gravamen of my offence. I have dared to observe for myself, regardless of the views of others, and to put together the results of my observations, thinking that they might do some service in advancing surgery, to the interests of which I confess myself to be devotedly attached. I have dared for some years past to watch the progress of disease in joints, especially the process of ulceration; and having formed views of it in some respects peculiar, have had the boldness to publish them. I differ in no points of importance from Sir Benjamin Brodie, but only have endeavoured to add something to his contributions towards the elucidation of the diseases of joints. The reviewer forbids it,—truth must be stifled,—no one shall approach the sacred ground.

If it should be thought that I have used the name of this distinguished surgeon lightly, I shall be forward to make every amends in my power. But I think that I know him better than the Messrs. Johnson do, inasmuch as my knowledge and respect for him are disinterested, and what I do know of him, leads me to believe, that he will only smile at my exposure of the littleness of the reviewer. Sir Benjamin's reputation and labours rest on a more secure foundation than the ephemeral support of the Messrs. Johnson's Review. By a long course of labour, he has earned reputation and rank, to which he is justly entitled, and far beyond any thing that can ever fall to my humble lot. It is altogether foreign to my nature to pull down one stone from the fabric of the reputation which this distinguished member of our profession holds among us; and the reviewer will, perhaps, hardly understand me when I tell him, that no adulation from him, and no sacrifice of the characters and labours of others, however humble, or however exalted they may be, will really add one leaf to the deserved laurels of Sir Benjamin Brodie.

The application of the term "scientific resurrection-men" is in keeping with the general tenor of the review. The good taste of the writer may be questioned by those who see nothing either barbarous or degrading in recurring to the practice of former surgeons, and who may think that the expression might have been dispensed with. I have, and with pleasure confess it, exhumed the operation of Petit, of leaving, in some cases, the hernial sac unopened, and have, therefore, laid myself open to the good feeling and mercy of this charitable reviewer. I cannot, however, omit adding, that I have given to every one, who has had any share in promoting the operation, his full meed of praise and credit. Yet I claim no merit to myself on this ground; I have only acted in accordance with the invariable rule that has guided my respected preceptor Sir Astley Cooper,—of rendering credit to those to whom credit is due. Moreover, I am content to bear any odium that the Messrs. Johnson may be pleased to cast upon me, provided that the fair-judging part of the profession be not blinded by the dust which those gentlemen design to throw in their eyes.

These observations I have thrown together for the purpose not of attack but of defence. I am not inclined to disputation, unless when the latter object demands it; and then I do not hesitate to gird my loins for the combat. The Messrs. Johnson have not openly avowed their hostility, but have quietly tried to demolish me with a masked battery, under cover of a fair show of reasoning and criticism. I am

not to be easily crushed in this way, at least, not without some shew of defending myself. Open hostility, or an avowed attack, would have been passed by unheeded; of the motives, as well as of the efficacy, of such a mode of warfare, those who read the attack can always judge; it is only the covert enemy, who escapes detection and exposure, until he be pointed out by the finger of the injured, that I think it worth while to resist.

The sneer which the Messrs. Johnson bestow on my advocating the "salutary efforts of nature," only convinces me, that I have been educated in a different school from the reviewer, where I have been formerly taught, and now teach, this same beautiful, as it appears to me, doctrine of the beneficial provisions of nature shewn in the protection afforded us against the destructive operations of disease. I am content to remain in this state of ignorance and prejudice, if it please the enlightened reviewer so to consider it. Moreover, I will throw out for the wonderment of this gentleman, another equally strange axiom, namely, that the attacks of reviewers are much less hurtful than many squeamish persons are inclined to believe; and for this reason—that it is not in the power of a reviewer to do more than for a time to throw a veil over the truth, or to stifle its voice. The moral government of the world is otherwise arranged than to allow man to injure the character—mind, Mr. Reviewer, I say character—of his fellow man. Physical force is, doubtless, allowed to prevail, as it is in the brute world; but in that which distinguishes man from the beasts that perish—the mind—he is safe; no human being can injure or debase the mind of another; this lies only in his own power; by himself only can man be thus injured. This doctrine, I dare say, like that of the salutary efforts of nature, will be received by the reviewer with derision. Nevertheless, I am a believer in both.

"Truth being my object, the free discussion," in which I have indulged, requires me to make no apology to the Messrs. Johnson; I shall, therefore, conclude, by subscribing myself, sir,

Your obedient servant,

C. Aston Key.

St. Helen's Place,
April 12, 1836.

LITHOTRIPSY.

BARON HEURTELOUP AND SIR CHARLES BELL.

To the Editor of the Medical Gazette.

Sir,

I have been much gratified at the friendly and liberal manner in which Sir Benjamin Brodie has explained (I am willing to believe) an *error* into which Sir Charles Bell had fallen, in the description of an instrument supposed to have been used by the Baron Heurteloup, at an operation performed on Colonel Rowkin, nearly four years ago

This explanation, so far as it goes, probably sufficiently sets at rest that point; but I feel much regret that Sir Benjamin did not enter more fully into the circumstances connected with the operation, to shew that statements with regard to the entire case, and its consequences, have been uncharitably and recklessly promulgated in Sir Charles's clinical lecture, delivered at the Middlesex Hospital School, on the 14th March last.

This *extraordinary* lecture abounds with so many misstatements, or mistakes, in addition to the point before mentioned, that I feel myself called upon (as having introduced the Baron into this country, and having, for a very long period, witnessed his great success in the operations of lithotripsy) to disabuse the public mind of an impression so undeservedly injurious to the reputation of a highly honourable gentleman, and skilful surgeon. At a very early moment I purpose entering fully into the subject, and I trust I shall effectually remove all the unwarrantable prejudices which have been attempted to be established by numerous individuals, who from want of sufficient observation and experience would prematurely condemn an operation, identifying the best feelings of humanity, in combination with much comparative security to the sufferers.

I have the honour to be, sir,

Your very obedient servant,

Anthony White.

Parliament-Street,
April 7, 1836.

MEDICAL GAZETTE.

Saturday, April 16, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

THE GERMAN DIPLOMA SYSTEM.

HEIDELBERG AND ERLANGEN.

SOME observations which we made on the subject of the importation of German degrees, a few months since, have, we perceive, drawn forth reclamatory statements from Heidelberg and Erlangen. In a late number of the *Allgemeine Zeitung*, the heads of those Universities have published explanations, apologetical as well as recriminatory, with reference to the charges brought against them by us. Once for all, and *in limine*, we beg to say, that no remarks of ours were in the most remote degree intended to reflect disrespectfully on the learned individuals who compose the governing bodies of the Universities in question; for those individuals we have always entertained the highest respect: we merely censured—but that, too, "more in sorrow than in anger"—the exceeding facility with which they suffered themselves, as a body, to be imposed upon by strangers: and the principal brunt of our animadversions was directed against those who took advantage of their easiness for their own selfish purposes.

Had we any reason to believe that our statements on the occasion referred to were incorrect, we should be most willing to be set right, and cheerfully would we retract any proved misrepresentation. But, upon looking over the declarations of the Heidelberg and Erlangen authorities, we can only find matter in them confirmatory of our views. Of Heidelberg, be it remembered, we spoke cautiously, and with more reserve than of her learned sister. The University which includes in its list of professors the illustrious names of Tiedemann, Arnold, Chelius, Gmelin, and Muncke, would claim a respectful deference under any circumstances; and we rejoice to find that it is able, in a great measure, to exonerate itself from the imputation of too easy a bestowal of its diplomas.

We can make allowance for the tone in which Heidelberg offers its explanations; but come we to the facts. The records and archives of the medical faculty of Heidelberg, it is said, prove that only *eighteen* persons from Great Britain have obtained the degree of M.D. at that University within the last *ten* years; and that, of this number, *eleven* stood the test of the usual examinations,—which, it is added, cannot be so very superficial, inasmuch as several British candidates, who presented themselves to the test, were rejected, and others have thought proper to withdraw without attempting to try the ordeal. The inference from this candid statement is, that only *seven* diplomas have of late been given away by Heidelberg to British practitioners,—but on what terms, the heads of that University do not think proper to inform us.

The Erlangen faculty take up the matter in a very different temper from their brethren in Baden. They seem inclined to bluster, and make a grand display both of their principles and conduct. They express surprise and indignation at the charges brought against them in the MEDICAL GAZETTE, and proceed immediately to animadvert on the manner in which medical degrees are conferred in England; they describe the almost insurmountable obstacles which impede the procural of doctors' degrees by Roman catholics, dissenters, surgeons, and general practitioners, however able and celebrated,

who, in consequence of their exclusion from the English Universities, have been for years under the necessity of resorting to those of the continent, if desirous of practising as physicians! It is not denied that, *authorized by its laws*, the University has granted diplomas, without examination, to several members of medical and scientific societies in Great Britain, to teachers of the medical sciences, to persons of well-known reputation, and authors who had acquired celebrity by their works. Testimonials have been insisted on, such as certificates of competency from eminent professional persons. And such individuals, the declaration of the Erlangen faculty goes on to say, would not be considered unworthy of a diploma by any German University! Even in the course of last year, the University conferred degrees on several British practitioners whose works had obtained celebrity in Germany, and who had presented the required certificates of their qualification. The names of several persons are then given, by way of justifying this liberal mode of proceeding — but *such* names of *distinguished* authors, and *celebrated* practitioners!—in pity to all parties, we will suppress them. In conclusion, the medical faculty of Erlangen states, that it has done *no* prejudice either to German honour, German medicine, or to the character of the German Universities, and considers it much to be desired that other Universities of Europe should not grant degrees to persons *less* deserving!

We heartily concur in this last sentiment of the worthy Faculty, whatever difference of opinion we may entertain as to the prejudicing of German honour, character, &c. But let us ask, what have our Erlangen friends proved after all? Of what have they convinced the world by their public declaration? We really hesitate to express our free thoughts on their conduct, convinced as *we* now are of one fact, which we only half suspected before,—and that is, that however illustrious our German *savans* may be as men of books and men of science, as men of the world they are as simple as children, and as easily imposed upon by showy trifles. Have our statements been contradicted? Have they not been fully confirmed? We said that nothing was more easy than to procure an Erlangen degree. The certificate of three respectable professional men of known names we affirmed was sufficient, and that the depositing of *the money* with the appointed agent in London was an essential part of the process. In this respect, by the way, the faculty have shown themselves not quite *so* simple as might otherwise be thought. We mentioned that we knew the names of several who had availed themselves of this easy method of medical graduation, and thanks to the Erlangen declaration we now know of more. The system we denounced as *rapacious* (perhaps the term was too strong) on the part of the foreign University in question, and any thing but creditable to the individuals here, who by such means decorated themselves with tinsel finery and borrowed plumes. What, then, is there in the manifesto from Erlangen to warrant us to alter our opinions?

A word or two to this learned faculty of Erlangen, ere they again come forward to expose themselves. They talk in a lofty strain of their own liberality, and their desire to remedy our exclusiveness. Would it not be as well that they should endeavour to get acquainted with the evil to be remedied, before they venture to administer their specific for it? Let them learn, that with the exception of two Universities, to which nobody thinks of going for a medical education, there is no bar of prohibition elsewhere in these realms to prevent dissenters, Roman catholics, or surgeons (to use

the German classification), for proceeding regularly to degrees in medicine. But we have to inform them that there is not one of our Universities, or medical institutions, which can, "authorized by its laws," give away its *highest honours* for money, on the mere transmission of a certificate, and without a solicitation of the said honours in person. The force of opinion has for some time put down the abuse practised in certain Scottish Universities, and we believe it now remains for Erlangen alone, of all the medical establishments in Europe, to pursue the disgraceful system which we reprobate.

We trust, however, that these observations may have some effect in putting an end to the system. Our friends at Erlangen cannot take in ill part the suggestions which we offer: for we are sure that, on cool reflection, they cannot but see how they have been imposed upon, and nearly cheated out of their well-earned reputation. As to the worthy individuals here who long for *honours*, and have no objection to wear foreign mosaic, so as they may pass it off for sterling metal, we take some credit to ourselves for checking their absurd career. We rather think that in future they will find their market at Erlangen somewhat spoiled: they must now look well to their "works;" and if they have still the ambition of coming forth Doctors of Bavaria, they must, we fancy, have better certificates to produce than have hitherto been deemed sufficient.

SENTENCE ON A QUACK FOR MANSLAUGHTER.

SALMON, whose trial we reported last week, was brought up for sentence on Saturday, the 9th inst. The fine of 200*l*. to the King might, under other circumstances, be deemed considerable; but in the present flourishing state of the "Hygeian" concern, it is a mere trifle—as, indeed, was shewn by the immediate payment of the money, and the discharge of the prisoner. A public example ought to have been made of this man: were it only as the proxy of his master, he should have stood occasionally in the pillory, or sat in the stocks, with imprisonment and hard labour in the intervals of exhibition. We give the sentence as pronounced by the Recorder: it will be found to explain, in some degree, the opinions of Mr. Justice Pattison, some mistake, apparently, having gone abroad respecting their tenor.

"You have been convicted by a jury of your country, after a most patient investigation, and a most humane summing up of your case by the learned Judge, before whom you were tried, of the manslaughter of Mr. M'Kenzie; and the jury, in returning the verdict which they did, found that you had been guilty of gross want of skill and of gross rashness in administering large quantities of Morison's pills to an individual of the nature of whose disease you were ignorant. Some circumstances were proved in the course of your trial which were of a favourable description; for, from the evidence which was adduced, it appeared that you had, in very many cases, administered the same descriptions of medicine to other patients with great success. At the same time, however, it was also shown that you had represented yourself as a medical man, when, in fact, you were not in any way connected with the profession of medicine; but even if your representations on this head had been founded in truth, you would have been equally liable to punishment, had a verdict been returned against you similar to that which the jury have brought in in this case. Your conduct in this instance may be considered to be highly improper; for, when you found your mode of treatment to be unsuccessful, instead of desisting from it, you continued to administer large quantities of the same medicines which had already reduced your patient to a state of the greatest weakness, until at length he died. The learned Judge before whom your case was tried fully concurred in the verdict which was returned against you, and he has thought that, to meet the justice of the case, a very heavy fine should be inflicted on you, in order that other persons may be deterred from pursuing a similar line of conduct. The sentence of the Court, therefore, on you is, that you pay a fine of 200*l*. to the King, and that you be confined in His Majesty's gaol of Newgate until the same be paid. I think it proper, also, before you leave the dock, to caution you that, in the event of your be-

ing again found guilty of conduct of a similar description, the character of your offence will be very materially altered. I hope that the punishment which is now inflicted on you will deter others from rashly administering medicines, with the nature of which they are unacquainted, in large quantities, as the results may be fatal."

The prisoner then left the dock, and, the fine having been immediately paid, he was discharged out of custody.

MECHANICAL PHILOSOPHY AS APPLIED TO MEDICINE.

Abstract of Lecture Third: as delivered at the Aldersgate School,

By Dr. Birkbeck.

Dr. Birkbeck began by remarking, that a distinguished cultivator of organic science had compared the movements of the animal body to a vortex or whirlpool. In so far as floating matter was brought towards the centre by the revolution of the vortex, and, after having been tossed about for some time, was rejected to float as before, the resemblance of this matter to that which is introduced into the animal system might be admitted; but he observed, that a difference not adverted to by Cuvier occurs. The particles involved in the animal vortex become endowed with vital properties, and exercise new functions in consequence of this endowment; of which they only become divested, when they are expelled, again to make a part of the mass of common or brute matter. This change unceasingly proceeding during animal existence, we may designate by the words figuratively applied by Shakspeare to sleep: we may strictly call it, "the death of each day's life."

This ceaseless revolution of the matter from without, taking place in living organized tubes, changes, consequent upon pressure and motion, must occur. And it is not improbable, that the effect produced by certain organs, termed glands, in which the circulating fluid is subjected to pressure and motion through a great extent of vessel, often of extraordinary minuteness, is thus, at length, accomplished. The structure of the testicle, as commonly displayed, furnishes an excellent instance: the spermatic artery, always very small, becoming three hundred portions or bundles of sixteen feet each in length, and the two hundredth part of an inch in diameter; besides the length of the tortuous tube, the epididimus, in which, by means of the vasa brevia, they terminate, what may here exist, in addition to motion necessarily very slow, and pressure consequently very long continued, cannot be discovered. Whether they may be sufficient or not, it would be premature to decide.

It was next stated that the fluids, which were all contained in tubes, or areolæ, or cells, were subjected to hydraulic laws, or to corpuscular attraction, like ordinary fluids. That the condition of the tubes in animal structures did not remove them from the influence of these laws, was shewn by employing a flexible elastic tube, of considerable size, as a syphon, and with it emptying a vessel of water, with varying velocities, according to the mode in which it was bent. This, it was demonstrated, agreed with the syphon constructed with rigid materials.

The fluids in cells, it was asserted, were acted upon by the minute vessels proceeding from them, as capillary tubes, exactly similar to those which are formed of glass; the conditions, of course, under which each exert their action, varying proportionately the result.

For the distribution or circulation of the principal fluid, the blood, in the more perfect animals, the mammalia, for example, a beautiful hydraulic arrangement is provided. In the whale the apparatus is of great magnitude; the first tube, the aorta, being represented by Dr. Hunter, in his account of a dissection of this mighty animal, to be as large as the main-pipe of the old water-works at London Bridge. Through this pipe, with a prodigious velocity, ten or fifteen gallons of blood are driven by the heart at each contraction, constituting a force similar to that by which the water of the Thames was formerly distributed through this city. One important difference, however, is observable, it was mentioned, in the two hydraulic arrangements. In one the fluid is disposed of after distribution, and never returns; in the other, a second series of tubes is provided, by which the fluid, or a considerable part of it, is brought back to the impelling source. This constitutes what is usually termed the circulation, and one of the unavoidable appendages to the second series of tubes, the valves, or flood-gates, contributed materially to suggest and confirm the splendid discovery of Harvey, who, in the year 1620, made the most important addition to the knowledge of the animal economy that was ever achieved by one individual. The various forms of valves in the heart and blood-vessels were described, and shewn to be as strictly hydraulic instruments as those of a pump invented by

De la Hire, which was exhibited in action, or a common pump elucidated by a diagram, were admitted to be. A particular account was next given of the mode in which vessels are placed in relation to trunks and joints, and the provision which appears against casual pressure and friction, as well as against injury to important organs, from augmented impetus. An erroneous representation of the course of the arteries supplying the fingers, by Dr. Paley, in his admirable work on Natural Theology, was next corrected. "Sometimes the blood-vessels," says he, "proceed in channels, protected by stout parapets on each side; which last description is remarkable in the bones of the fingers, these being hollowed out on the under side like a scoop, and with such a concavity that the finger may be cut across to the bone, without hurting the artery which runs along it." Now, as the skeleton hand proved, there is neither parapet nor concavity, but as the injected hand shewed, a vessel for supplying each finger, divided into two branches at the first phalanx, and these branches proceeding securely along the sides of the fingers. The peculiarities of the cerebral circulation were then insisted upon, and the results, physiological and pathological, arising from the cavity of the cranium being air-tight, and the brain and blood being, as to all practical effect, incompressible, were specially displayed. To assist the comprehension of these inferences by Drs. Monro, Clutterbuck, and others, the hydaulic press of Bramah was referred to; and the improbability of an increased quantity of blood at any time existing within the cranium, without some proportionate abstraction, and the certainty of increased pressure, where what is called increased determination of blood to the head occurs, lead to the strong recommendation of the free use of the lancet in affections of the head, instead of the partial abstraction of blood topically, as it is unwarrantably called, by leeches and cupping.

Dr. Birkbeck then proceeded to speak in detail of the structure and offices of another class of vessels supporting, in the form of introduction and expulsion, a species of circulation. The lacteals, the introducing, and the absorbents, the removing, were fully described; and considerable attention bestowed upon the formation and function of the villous processes of the internal coat of the intestines, and the mouths of the ordinary absorbents. In illustration of this subject, the elevating influence of glass planes and glass tubes, of very small diameters, was exhibited; and the manner in which this, the first step in absorption, the attractive step, conduces to the performance of the important animal function, was fully displayed. Of this part, as well as of some others touched upon in this lecture, a more complete development, it was stated, would appear, when, in the lecture succeeding, the subject of pneumatics, in relation to the animal economy, was specially discussed.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, April 12, 1836.

H. Earle, Esq., F.R.S., President, in the Chair.

There was a very full attendance of the Fellows and their friends this evening. The following is an abstract of the first paper which was read: it was entitled—

Case of Congenital Dislocation, or Displacement, of the Hips. By John North, F.L.S., Lecturer on Midwifery, and the Diseases of Women and Children, at the Westminster School of Medicine.

The author had hoped, when the subject of this case came under his care, to have been the first English writer to place on record an example of the kind; but he afterwards learnt that a similar case had already been published in the Dublin Journal, for September, 1835. Mr. North confessed, that for all the knowledge he possessed on the subject, he was indebted to a paper by M. Dupuytren, in the "Repertoire Gén. d'Anat," which paper he read immediately after it was published, and the importance as well as novelty of its contents especially attracted his attention, because he believed he had seen, both in public and private practice, this particular kind of congenital displacement mistaken for disease of the hip-joint, and that in consequence of this error a long-continued, painful, and altogether useless plan of treatment, had been adopted. According to M. Dupuytren, the displacement consists in a transposition of the head of the femur, from the acetabulum into the external iliac fossa. It exists from birth, and appears to result from a want of depth in the acetabulum, rather than from any accident or disease.

In September last Mr. North was requested to see a child about three years old, which was thought to be labouring under disease of the hip joint, for which leeches in abundance, blisters, and caustic issues, had been very freely and very fruit-

lessly employed. From its birth to the age of about a year, the child appeared in good health, and nothing remarkable about its limbs attracted the attention of the friends or medical attendant. When about a year old, the mother "thought the shape of the hips rather odd," whenever the child was placed with its feet on the ground; but as she appeared quite free from pain, and in good health, medical advice was not deemed necessary. For some time after the age when children usually begin to walk, the mother found that her little girl was quite unable to stand upon her feet; this was at first attributed to her being backward in walking, and therefore was neglected. At two years of age the child was still unable to stand or walk for more than a minute; and even this slight exertion was effected with much effort and difficulty. The "odd shape" of the hips and thighs was now more evident, and a village surgeon was consulted. The case was determined to be one of "a beginning of white swelling in both hips." The child was accordingly confined to bed, and went through the usual routine of leeches, blisters, and issues; very spare diet was recommended, from the apprehension of inflammation in or about the hip-joints. From this discipline, which was continued with different degrees of activity for three or four months, the health of the child declined, and she became much emaciated. The "odd appearance" of the hips and thighs was rather increased than diminished, and the child was still unable to stand or walk. The mother therefore determined "to have done with doctoring, and to trust to nature" and nourishing food.

The child soon recovered her health, and about six months after the discontinuance of all medical treatment Mr. North saw her. Upon extending the limbs, he found them of equal length, and natural in appearance; the knees, however, being a little turned inwards. No pain was given by pressure, or by quickly moving the limbs in any direction; no tumefaction; no appearance of inflammation. She was placed on her feet, naked, and instantly the description given by Dupuytren of congenital displacement of the hips occurred to the author. She was raised upon her feet, with her mother's hands under the armpits, and the moment she rested her feet on the ground, the nature of the case was evident. The knees struck together; the thighs were shortened; and the head of the femur on each side could be felt raised upwards on the dorsum of the ilium, towards the crista. When the child attempted to move forwards, the appearances so well described by Dupuytren immediately resulted. She seemed to require much preparation for the act of progression. One foot was very deliberately raised from the ground, her body sinking towards the side that was to support its weight; and as she walked, or rather waddled forwards, the head of the femur upon which she rested could be felt, and, indeed, seen, rising upon the dorsum of the ilium; the limb that moved forwards came to the ground with a feeble jerk, and when in its turn it had to support the superincumbent weight, the head of the femur on that side was raised in the same manner. The child was soon tired, but suffered no pain. She was put to bed, and again examined. Mr. North now found, as he expected, that he could, without any difficulty, and without giving any pain, lengthen the thighs by drawing them gently downwards, or shorten them by pushing them gently upwards. Judging from the alternate elevation and depression of the trochanters which were thus produced, the head of the femur on each side appeared to move more than an inch upwards and downwards.

The nature of the infirmity could not be doubted. It was certain, from the history of the case from its commencement, that no disease had existed. It was equally clear, from the appearances, that the acetabulum on each side was deficient in depth, and did not retain the head of the femur. Mr. North stated the irremediable nature of the case to the friends, and advised them not to permit any painful treatment. He recommended them to adopt the plan suggested by Dupuytren: to apply a well-padded belt around the pelvis, so as to prevent the head of the thigh-bones from rising on the ilium when the child attempted to walk. By this means she was enabled to walk with more facility and firmness, and without any pain, when she became accustomed to the bandage. The child died about three months ago of hooping-cough: the author regretted that he could not examine the body, but expressed his belief that, even without the evidence of dissection, no doubt could exist as to the nature of the case.

Mr. North then gave some account of the paper of Dr. Hutton, in the Dublin Journal. Dr. H.'s patient—an idiot—died of inflammation of the larynx. He had been lame from infancy, and the hip-joints bore the marks of leeches, issues, &c. Upon dissection, Dr. Hutton found an imperfect formation of the acetabulum on each side, which accounted for the displacement of the femurs that had existed during life. There were no marks of inflammation or disease in the joint.

According to M. Dupuytren, the subject of congenital dislocation is especi-

ally important in reference to diagnosis; for, as it presents all the ordinary signs of luxation of the hips, which is often consecutive to disease of the joint, it always has been confounded with it, and submitted to the same treatment. He relates several cases which were maltreated from this mistake. The diagnosis is, however, easy, by attending to the commencement of the lameness, and the general history of the case.

In the few cases M. Dupuytren had an opportunity of examining after death, he found the following appearances. The muscles attached above and below the acetabulum were all dragged towards the crista ilii. Some of these muscles were well developed; others small and shrunk, and had lost all appearance of muscular tissue. The acetabulum was either entirely wanting, or the only vestige of it was a small irregular osseous projection, without any trace of cartilage, synovial capsule, or fibrous margin. In two or three subjects the round ligament was lengthened and flattened. The ligament was lodged in a cavity analogous to that which is developed around the head of the femur in accidental and unreduced luxations of the bone upwards and outwards.

With respect to treatment, cure is hopeless and impossible; nor can any very efficacious palliative means be adopted. Extension of the limbs is useless; repose, in a sitting posture, is necessary. Any avocation which would demand exercise would be improper for persons thus afflicted. But as they cannot be condemned to constant rest, something must be done to diminish the inconvenience they experience when they stand or walk. The cold bath is recommended, and a soft well-padded girdle to be worn round the waist to fix the trochanters, and keep them from rising upwards. M. Dupuytren met with about 25 cases of this displacement in 20 years, and it is curious that all but 3 or 4 were females. In all but 2, b th femurs were luxated.

In conclusion, Mr. North observed that Dupuytren was by no means the first who noticed this disorder. Hippocrates, in his tract De Articulis, had rather indefinitely referred to it; and Paletta, *De claudicatione congenita*, described it clearly.

Mr. Langstaff offered a remark or two expressive of certain doubts which he entertained as to the nature of the disorder. He objected to the term dislocation; thought M. Dupuytren's description ambiguous; and was rather inclined to believe that in the cases mentioned, the child might in labour have presented by the feet, and that the limbs were dislocated by pulling at them!

Mr. North was quite willing to accept any other term that Mr. L. might suggest, instead of dislocation, but he thought the explanation offered—of dislocation caused by pulling at the feet—was quite imaginary. It could hardly be supposed that in so many cases such malpractice could have been adopted; and he doubted the possibility of inflicting such an injury by any degree of force that the most ignorant practitioner could apply.

The President said he felt much interested in the subject of Mr. North's excellent paper, and related a case in point, of a girl 11 years of age, who had been under his care: he was convinced that she laboured under congenital malformation. However, since he discontinued his attendance on her, he was informed that she had been placed under the care of a practitioner who was trying the method of active extension: it was boasted that the hips had already been drawn down *three inches!*

A short paper was then read by the Secretary, *On Dislocation of the Femur*, by Mr Travers, Jun.; after which the Society adjourned.

MEDICAL EDUCATION IN IRELAND.

SCHOOL OF PHYSIC.

To the Editor of the Medical Gazette.

Sir,

Dr. Lendrick's second letter, addressed to you, contains not facts, but notions and vain assertions, which it would be a waste of time to discuss.

It is not to be denied that the Board of Trinity College have ordered me to teach anatomy and surgery as *one* course, and that this kind of instruction is not considered sufficient in any other medical establishment, or school, in the United Kingdom. These facts are already before the public; with respect to which, and their consequences to the School of Physic in Ireland, there will, I am satisfied, with all intelligent and impartial men, be but one opinion. I shall therefore not wish, probably, to occupy the pages of your journal further on this subject.

I am, sir,
Your very obedient servant,
James Macartney.

Dublin, April 12, 1836.

[Here this controversy must close; or, if *we* may have the last word, it is to say that we have seen no reason assigned, to warrant us in changing our opinions as we stated them in the outset. See last vol. p. 819.—Ed. Gaz.]

COLLEGE OF SURGEONS.

RECOGNIZED TEACHERS OF ANATOMY.

———

(For the Medical Gazette.)

The Council of the Royal College of Surgeons deem it essential that teachers of anatomy should be provided with the preparations of parts mentioned in the following schedule, intended to comprise those preserved, injected, or otherwise prepared structures which cannot be adequately demonstrated in the recent subject.

1. Artificial skeletons, male and female. 2. The several bones of the skeleton, including the separated bones of the cranium. 3. Sections of the cranium. 4. Preparations showing the structure and growth of bone. 5 The component structures of the various joints. 6. The deciduous and permanent teeth, their structure and formation. 7. The mouth, salivary glands, fauces, and other parts concerned in deglutition. 8. The organs of digestion and their appendages; exhibiting the structure of the alimentary canal, of the glandular and other parts concerned in the digestive process. 9. The thoracic duct, the lacteals, and the other absorbent vessels, with their glands. 10. The heart, exhibiting its structure in the adult and fœtal states; and the parts concerned in the circulation of the fœtus. 11. The blood-vessels, their structure, arrangement, and distribution. 12. The larynx, the trachea, and the lungs, with the distribution of the air-tubes and the blood-vessels. 13. The brain and spinal cord, with their membranes. 14. The nerves, their origin, structure, and distribution. 15. The organs of the senses:—1. Of sight: the globe of the eye, its component textures, the lachrymal apparatus, and its other appendages. 2. Of hearing: the various parts comprised in its external, middle, and internal divisions. 3. Of taste: the tongue, its nerves and papillæ. 4. Of smell: the nasal chambers, the communicating sinuses, and their lining membranes. 5. Of touch: the peculiar conformation of the skin instrumental thereto, with the structure of the common integuments and their appendages.—16. The urinary organs, showing the structure of the kidney and ureters, of the bladder, the urethra, and Cowper's glands. 17. The male organs of generation, exhibiting the structure of the testis and vas deferens, of the vesiculæ seminales, of the prostate gland, and of the penis. 18. The female organs of generation in the unimpregnated and gravid state. 19. The peculiarities of the fœtus.

It is expected that teachers of surgery should have the means of illustrating, by suitable preparations, those points in pathology and practice which are treated of in surgical lectures.

Edmund Belfour, *Sec.*

March 15, 1836.

MEDICAL ATTENDANCE ON THE SICK POOR.

PETITION FROM THE PRACTITIONERS OF SURREY.

———

To the Editor of the Medical Gazette.

Sir,

I beg to transmit to you, for insertion in the Medical Gazette, a copy of the Petition from the medical men of Surrey, which was presented by Lord Eastnor on the 29th March.—I am, sir,

Your very obedient servant,

Peter Martin.

Reigate, April 13, 1836.

To the Honourable the Commons of the United Kingdom of Great Britain and Ireland, in Parliament assembled.

The humble Petition of the undersigned Practitioners in Medicine and Surgery, residing in the County of Surrey,

Sheweth,

That your petitioners, in common with the great body of medical practitioners, have long felt the evil resulting from the practice of contracting, more especially by tender, for the medical attendance on the sick poor.

That on a change of system being generally adopted in the administration of the poor laws, it was the expectation of your petitioners, that a practice at once injurious to the poor, and derogatory to the profession, would have been discontinued.

That your petitioners have seen, with regret, that the Poor-law Commissioners have taken no steps to remove the evils complained of; which have, on the contrary, increased under the new system.

That although the Commissioners have declared it not to be obligatory on Boards of Guardians to accept the lowest tender that may be offered, yet it is notorious that such is generally the practice.

That in providing for the care of the sick poor, the only guarantee which Boards of Guardians can possess for the proper performance of that duty, will be found to consist in the appointment of men of known respectability and experience; an

object not likely to be attained by the present system.

That the difficulty of affording medical assistance to the poor is much increased by the division of Unions into very large districts, and the appointment of a less number of medical officers than under the old system.

That the regulation by which the relieving officer is constituted the judge, as to whether the indisposition of a pauper is sufficiently serious to require medical relief, is likely to be very injurious to the health of the poor, and consequently to increase unnecessarily the labour of the attendant.

That your petitioners are far from wishing their interests to be considered in opposition to those of the rate-payers. On the contrary, they are firmly convinced, that economy in the parochial expenditure will be promoted by the furnishing of good and sufficient attendance to sick paupers; and they are further convinced, that this object is not likely to be generally attained, when rates of remuneration are offered so utterly inadequate to the skill and attention required.

Your petitioners therefore pray that your Honourable House will be pleased to appoint a committee to inquire into the present system of affording medical relief to sick paupers; and into the propriety of adopting any change in the same.

And your petitioners will ever pray.

[With 64 signatures.]

THE LATE MR. W. DOBSON.

(From a Correspondent.)

Died, on the 10th of March, at his house, Princes-Street, in the 29th year of his age, William Dobson, Esq., M.R.C.S., Lecturer on Comparative Anatomy at the Westminster School of Medicine.

Mr. Dobson commenced his brief but creditable career in the promulgation of anatomical science in the winter of 1829, during which period, and the winter of 1830, he lectured on anatomy at the school of medicine in Leeds, established by the late Mr. Charles Turner Thackrah. He afterwards came to London. In October last he commenced teaching comparative anatomy, but had delivered only two lectures on the subject, when he was seized with the disease (consumption) which terminated his life. Mr. Dobson has left behind him several works on anatomy, which it is probable will ere long be published. We regret to learn that he has left a widow and two children totally unprovided for.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

April 14, 1836.

Francis Morgan Walker, Chesterfield, Derbyshire.
Robert Rivers, Ipswich.
John Charles Langmore, Finsbury-square.
Joseph Teale, Leeds.
William Pierce Jones, Holywell, Flintshire.
George Jessett, Horncastle, Lincolnshire.
Henry Dibble Chester, Redruth, Cornwall.
Josiah Johnson Elletson.
James Acland de la Hooke, Ilchester, Northamptonshire.
George Bailey Snow, Lincoln.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *April* 12, 1836.

Abscess	3	Hooping Cough	11
Age and Debility	36	Inflammation	23
Apoplexy	5	Bowels & Stomach	5
Asthma	11	Brain	3
Cancer	2	Lungs and Pleura	8
Childbirth	3	Insanity	8
Consumption	53	Liver, diseased	2
Constipation of the Bowels	1	Measles	3
Convulsions	29	Paralysis	1
Croup	1	Small-pox	5
Dentition or Teething	6	Sore Throat and Quinsey	1
Dropsy	11	Spasms	2
Dropsy on the Brain	11	Thrush	2
Erysipelas	1	Tumor	2
Fever	6	Worms	1
Fever, Typhus	1	Unknown Causes	4
Hæmorrhage	1		
Heart, diseased	5	Casualties	6

Decrease of Burials, as compared with the preceding week . . 3

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N. Longitude* 0° 3′ 51″ W. *of Greenwich.*

April, 1836.	Thermometer.		Barometer.	
Thursday . 7	from 37	to 49	29·40	to 29·14
Friday . . 8	28	49	29·07	29·17
Saturday . 9	35	50	29·24	29·40
Sunday . . 10	32	54	29·46	29·63
Monday . . 11	37	52	29·64	29·67
Tuesday . . 12	26	55	29·67	29·74
Wednesday 13	40	58	29·75	29·72

Prevailing winds, N.E. S.W. and W.

Except the morning of the 10th and afternoon of the 11th, generally cloudy, with frequent rain.

Rain fallen, ·525 of an inch.

Charles Henry Adams.

NOTICE.

"L. P." has our best thanks: we feel much obliged, and will be most happy to avail ourselves of the kindness of our valued correspondent.

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SATURDAY, APRIL 23, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XXX.

IN this lecture I have to continue the account of the preparations of *sodium*.

Bi-borate of Soda.

History and synonymes.—Pliny describes a substance under the name of *chrysocolla*, which is usually thought to be the borate of soda. But the word *baurach*, or *borax*, first occurs in the writings of Geber: hence this term is probably of Arabic origin, though some derive it from the Greek, *βορος*, voracious, or gluttonous. By modern chemists the salt has been termed *bi-borate*, *borate*, or *sub-borate* of soda.

Native state.—It is found, dissolved, in the water of certain lakes; more particularly in Persia and Thibet.

Preparation.—Borax is obtained in two ways:—1st, by refining native borax; 2dly, by saturating native boracic acid with soda.

(*a.*) *By refining native or crude borax.*—About fifteen days' journey north from Teeshoo Lomboo, in Thibet, is a lake, said to be about twenty miles in circumference, and supplied by brackish springs rising from the bottom of the lake itself. In consequence of its high situation, during a part of the year this lake is frozen over. The water of it contains, in solution, both common salt and borax. The latter crystallizes on the edges and shallows of the lake, and is taken up in large masses, which are broken and dried.

It is imported under the name of *tincal* or *crude borax*, in the form of flattened six-sided prisms, coloured with a greasy unctuous substance, said, by Vauquelin, to be a fatty matter, saponified by soda; the colour is yellowish, bluish, or greenish. Mojon states that the greenish grey matter which surrounds some kinds of rough borax, contains native boron. Various methods have been contrived for refining borax; some calcine, to destroy the fatty matter, others wash with an alkaline solution (soda or lime), and then dissolve and crystallize.

(*b.*) *By saturating native boracic acid.*—In the year 1776, Messrs. Hoefer and Mascagni discovered boracic acid in the Lagoni of Tuscany, in a state of efflorescence, and also in solution in the waters with which the soil is impregnated. From the soil is constantly evolved aqueous vapour, impregnated with boracic acid and sulphuretted hydrogen; formed, as it is supposed, by the action of water on sulphuret of boron, contained in the interior of the earth,—by which part of the water is decomposed, the oxygen acidifies the boron, while the hydrogen forms sulphuretted hydrogen with the sulphur, and the heat evolved causes the formation of some aqueous vapour. By washing the mud surrounding the *fumaroles*, or craters, decanting the liquor, and evaporating, *rough boracic acid* is obtained; or, as it is frequently termed, *Tuscan boracic acid*. To form borax from this, a solution of the subcarbonate (carbonate) of soda is saturated with the rough acid: effervescence takes place, and borax is formed.

Properties.—As met with in commerce, borax is a white salt, in irregular crystalline pieces, the primary form of which is usually said to be the oblique rhombic prism, but from the measurements given by Dr. Thomson it would appear to be a doubly oblique prism. The taste is feebly

saline, sweetish, and alkaline: by exposure to the air the salt becomes white; when heated, it melts in its own water of crystallization, swells up, and forms a light, white, and porous substance, called *borax usta* seu *calcinata*, which, by a stronger heat, fuses into a glass.

Composition.—Borax is composed of—

	Thomson.		Berzelius.
Boracic acid..	2 atoms or = 48	..	2 atoms or = 69·8
Soda	1 atom or = 32	..	1 atom or = 31·3
Water	8 atoms or = 72	..	10 atoms or = 90·0
	152		191·1

By a particular management of the crystallizing process, Payen has obtained a borax in octahedral crystals (called *octahedral borax*) with only half the above quantity of water of crystallization.

Characteristics. — Borax may be recognised by the following characters: it reddens turmeric paper; it fuses before the blowpipe into a glass, which may be readily tinged by various metallic solutions,—thus, rose red by chloride of gold, and blue by solutions of cobalt; if a few drops of sulphuric acid be added to powdered borax, and then some spirit of wine, the latter will, when fired, burn with a green-coloured flame; lastly, if to a strong hot solution of borax, sulphuric acid be added, boracic acid will be deposited in crystals as the liquid cools. The tests now mentioned, for the most part only, prove the salt to be a borate: the nature of the base is determinable by the tests for soda already mentioned.

Physiological effects.—The local effects of borax are those of a mild irritant: applied to sores, it excites temporary pain and heat, and swallowed in large doses is said to vomit. Various remote effects have been attributed to it: at one time it was regarded as a subsalt, and its supposed excess of alkali was thought to render its action similar to soda, and thus, in some old authors, we find it classed among the antacids. When Homberg asserted, that boracic acid was a sedative substance, borax was supposed to partake of the same operation. A specific action on the uterus has also been ascribed to it; and thus borax is said, by some authors, to be emmenagogue, to facilitate parturition, to diminish the pain of accouchement, and to favour the expulsion of the placenta and lochia. The correctness of these statements is not admitted—at least in this country. Another effect attributed to borax is diuresis; and as Wohler and Stehberger have found that this salt passes off unchanged by the urine, the statement is very probable. On the whole, we may regard borax as a mild refrigerant.

Uses.—It is principally employed as a local application in aphtha, and ulcerations of the mouth, in which it is said to act as a detergent The *mellite of borax* is by far the most eligible form of employing it; it consists of one drachm of powdered borax, mixed with an ounce of clarified honey. In various skin diseases, borax has been applied with benefit: dissolved in rose water, it is a frequently-used cosmetic, and has been employed with advantage in *pityriasis versicolor* (called *liver-spots*, or *chloasma*.) As an injection in gonorrhœa and leucorrhœa, a solution of this salt has been found occasionally successful. Lastly, in the form of ointment, it has been applied to inflamed and painful hæmorrhoidal tumors.

Tartrate of Soda.

This salt is never met with in the shops, but is formed extemporaneously by mixing tartaric acid with the carbonate or sesquicarbonate of soda, and, therefore, is procured in the mixing of *soda powders*. The proportions for making this salt are as follows:—

15 grains of tartaric acid will saturate $\left\{\begin{array}{l}28\frac{3}{4}\text{ grains of } \textit{sesqui-carbonate} \text{ soda (sold in the shops as the carbonate).}\\ 16\frac{2}{3}\text{ grains of } \textit{carbonate} \text{ (subcarbonate of the shops).}\end{array}\right.$

It is a very mild aperient and diuretic; its action being similar to the other vegetable salts already noticed.

Potash tartrate of Soda.

History and synonymes. — This salt was discovered by Seignette, an apothecary at Rochelle, in 1672, and hence its name, *salt of Seignette*, or *Rochelle salt*. In the Pharmacopœia it is termed *soda tartarizata.*

Preparation.—It is prepared by saturating the bitartrate of potash with the subcarbonate (carbonate) of soda. In the Pharmacopœia the proportions are two pounds of the bitartrate, and twenty ounces of the subcarbonate. The excess of acid of the bitartrate saturates the soda of the subcarbonate, while the carbonic acid of the latter is disengaged.

Properties.—The primary form of the

crystals is the right rhombic prism; but, curiously enough, the crystals are sometimes produced in halves. The taste of this salt is mildly saline, and somewhat bitter. Exposed to the air it effloresces slightly; when heated, it gives out part of its water, melts, and at a stronger heat is decomposed. It is soluble in two and a half times its weight of cold water.

Composition.—This salt consists of—

1 atom of tartrate of potash,	114
1 atom of tartrate of soda ..	98
10 atoms of water, 9 × 10 ..	90
	302

Its formula, therefore, is $\dot{K}\,\overline{T} + \dot{N}\,\overline{T} + 10\,\dot{H}$.

Characteristic tests.—This salt is easily recognized by the form of its crystals. When heated it is decomposed, gives out an odour of caramel, and is converted into charcoal and the carbonates of potash and soda. By the addition of hydrochloric acid, these carbonates are converted into chlorides; and, by the chloride of platinum, the chloride of potassium may be separated from the chloride of sodium. A solution of the potash-tartrate of soda gives a white precipitate (*soda tartrate of barium* or of *calcium*) on the addition of chloride of barium or of calcium; while perchloric and tartaric acids, and the chloride of platinum, readily detect the potash present by the precipitates they occasion.

Physiological effects.—It is a mild, laxative, cooling salt, very analogous in its effects to the tartrate of potash. Like the other vegetable alkaline salts, it undergoes partial decomposition in the system, and is converted into the carbonate which is found in the urine.

Use.—It is a commonly employed mild aperient, and is frequently taken in an effervescent form under the name of *Seidlitz powders*, which, however, have no resemblance to the salts obtained from the Seidlitz waters. Seidlitz powders are thus prepared: two scruples of the sesquicarbonate of soda (carbonate of the shops) are mixed with two drachms of tartarized soda; these are the ingredients for one powder (usually sold in white paper), which is to be dissolved in half a pint of water; and to the solution are to be added thirty-five grains of powdered tartaric acid (commonly sold in blue paper): effervescence takes place, and we obtain a mixture of the *potash—tartrate of soda*, and the *simple tartrate of soda*.

Soap.

History.—The manufacture of soap was very anciently known, for this substance is mentioned in the Old Testament; and in the excavations made at Pompeii, a complete soap-boiler's shop was discovered, with the soap still perfect, though it had been manufactured for more than 1700 years.

Nature.—Soaps are to be regarded as alkaline salts, formed by the action of alkaline bases on fatty or resinous bodies. At one time it was supposed that they were mere compounds of fat or resin, and of alkali, but it is now known that in the process by which they are procured, the fatty body employed undergoes certain changes, by which two or three fixed fatty acids are produced—namely, the oleic, margaric, and stearic acids; these uniting with the bases (potash or soda) employed, form oleates, margarates, and stearates.

Having already, in a former part of the course*, noticed the products of saponification, it is unnecessary that I should here enter farther into the subject. Soaps, then, you will observe, are to be considered as mixtures of the *oleates*, *margarates*, and *stearates* of some base (usually *potash* or *soda*). When potash is used, the resulting salt is called *soft soap*, the common kind of which is made with fish-oil. *Hard soap* contains soda as the alkali, and is of various kinds: thus *yellow soap* is made from rosin and soda; *mottled soap*, of kitchen stuff and soda; *curd soap*, of white tallow and soda; and *Castile soap*, of olive oil and soda. In the London Pharmacopœia, the officinal soaps are *soft soap* and *Castile soap*.

Physiological effects.—The operation of soap on the system is analogous to that of the alkalies, only that it is much milder even than the carbonated alkalies, and, therefore, may be administered internally without danger of any violent local action on the gastro intestinal membrane. The alkali of the soap will, however, neutralize the free acid of the stomach, and the fatty acids of the soap will be set free. By continued use it disturbs digestion, disorders the appetite, and in fact gives rise to all the constitutional effects already described as produced by the continued employment of the alkalies: it increases the secretion of the urine, and probably modifies the quality of this fluid, just as the vegetable alkaline salts do. In large doses it is purgative.

Uses.—Soap is employed in medicine for various purposes. Dissolved in spirit of wine, with camphor and oil of rosemary, it forms a very useful stimulating application (*linimentum saponis compositum*), in local pains, bruises, rheumatism, &c. It may be swallowed as an antacid: thus in poisoning by the mineral acids, a strong solution of soap is a valuable antidote, since it effectually neutralizes the poison, without itself being very irritant; so, also,

* MEDICAL GAZETTE, vol. xvii. pp. 323 and 678.

to neutralize an excessive secretion of acid in dyspeptic complaints. In those forms of lithiasis in which lithic acid, or the lithates, prevail, soap is useful in preventing the formation of these bodies, just as the alkalies are. On account of its easy solubility, it is often used in combination with other medicines, in order to render them more soluble, or to give a proper consistence to various substances for the making of pills. Thus we have in the Pharmacopœia several pills which contain soap as one of their ingredients. Injections into the rectum of a strong solution of soap are sometimes made, in order to dissolve hardened fæces. Although, when soap is swallowed in full doses, it acts slightly on the bowels, yet it is rarely employed as a purgative merely, though it has been recommended in liver complaints, habitual costiveness, &c.

Chloride of Sodium.

History and synonymes.—As this salt is a necessary and indispensable seasoning to our food, it doubtless must have been known to the first individuals of our race. It has received various names, such as *common salt*, *culinary salt*, *marine* or *sea salt*, and *muriate of soda*.

Native state.—It occurs in both kingdoms of nature: thus sea and most mineral waters contain it. We meet with it in rocks of various ages: thus the constant accumulation of salt which is taking place in the inland lakes, may be mentioned as an instance of the occurrence of it in the the modern or *alluvial group*; and proceeding to other older groups, in the order of their age, I may mention the salt deposit at Wielicka, near Cracow, occurring in the *supra-cretaceous group*: the immense masses of salt at Cordova, in Spain, in the *cretaceous group*; the salt which occurs in the Lias, in Switzerland, in the *oolitic group*; the beds of salt in Cheshire and Worcester, in the *red sandstone group*; the salt springs which occur in this country, in the *carboniferous group*, and the brine springs in the old transition slate rocks of the *grauwacke formation*, in the United States. Most, if not all, geologists agree that these deposits of salt must have been once in a state of solution.

In the organized kingdom also, we meet with chloride of sodium: thus the blood and urine of man contain it.

Preparation.—The common salt of commerce is sometimes obtained by purifying native or rock salt; sometimes by the evaporation of water of brine springs; and lastly, sometimes from sea water.

1. *Purification of native salt.*—This native salt is usually denominated *rock* or *fossil salt*, or *sal gemmæ*. The English salt-mines occur in three counties—in Cheshire, at Northwich, Middlewich, and Nantwich; in Staffordshire, at Shirleywich; and in Worcestershire, at Droitwich. In Cheshire, the salt constitutes two beds, varying in thickness from 4 to 130 feet, and separated from each other by a bed of clay, 10 or 12 feet thick; the first bed of salt beginning at about 30 yards from the surface. It is for the most part of a reddish colour, but it is also met with in transparent colourless masses. In commerce it is termed *Prussian rock*, and is largely exported for purification. It is seldom met with sufficiently pure for use. According to Dr. Henry's analysis, it consists of

Chloride of sodium	983·2500
Sulphate of lime..........	6·5000
Chloride of magnesia......	0·1875
Chloride of calcium	0·0625
Insoluble matter	10·0000
	1000·0000

Bromine (probably combined with magnesium) has been found in the brine of springs, and hence doubtless exists in fossil salt. Fuchs has discovered iodine in the rock salt of the Tyrol.

Rock salt may be purified by dissolving in water and crystallizing; various substances (as glue, blood, butter, flour, alum, albumen, &c.) being added to the water, to promote the separation of the earthy matters.

2. *By the evaporation of brine springs.*—This is the method now adopted in this country. Brine springs are met with both above and below the level of the beds of rock salt. According to Dr. Holland, those of Cheshire contain from 21 to 27 per cent. of salt; the latter quantity (according to this same writer) constituting a saturated solution. The formation of these springs is easily accounted for: rain-water sinks through the earth covering the beds of rock salt, and at last arrives at the salt itself, where it rests, and forms a saturated solution. The brine-springs below the beds of salt, doubtless arise from the percolation of the water holding in solution salt.

The brine is pumped up by steam power into cisterns, or reservoirs; from which it is drawn when wanted, through wooden pipes, into the evaporating pan, which is made of cast iron. When the brine is not quite saturated, a little Prussian rock is added, to strengthen it. Various substances, as before mentioned, are put into the brine, with the view of causing the separation of the earthy matters: the impurities separate in the form of scum and sediment, the latter being termed *scale*, or *panscratch*. As all parts of the pan are not equally heated, the crystalli-

zation of the salt takes place at various times; and thus, in the same pan, the grains or crystals vary considerably in size. The large or coarse-grained salt constitute the *bay* and *fishery salts*; while *butter salt*, and *stoved*, *lump*, or *basket salt*, are small-grained salts.

3. *From sea-water.*—In various parts of the world, salt is obtained from sea-water: the particular mode of extracting it, however, varies according to circumstances. In warm countries, the salt (termed *bay salt*) is procured from sea-water by *solar evaporation*. [A plan of the salt-marshes of France was here shown and described]. In cold countries, *congelation* is resorted to, as a means of concentrating sea-water; for when a weak saline solution is exposed to great cold, it separates into two parts; one almost pure water, which freezes, and the other which remains liquid, and contains the larger proportion of salt. The ice being removed, the concentrated solution is afterwards evaporated, so as to obtain the salt. Another method of concentrating sea-water, or other saline solutions, is by *graduating houses*—that is, skeletons of houses, in which the water is pumped up, and allowed to fall on heaps of brushwood, thorns, &c.; by which it is divided and agitated with the air, and evaporation promoted. The further concentration is effected by artificial heat.

Properties.—It crystallizes in cubes, and in octahedrons: sometimes we meet with it in hollow four-sided pyramids, the sides of which are not planes, but like a flight of stairs. When heated, the salt decrepitates, (more especially the coarse-grained, or bay salt) in consequence of the conversion into steam of the particles of water which are mechanically lodged between the plates of the crystals; it melts at a red heat, and at a still higher temperature is volatilized. According to Gay-Lussac, 100 parts of water at 57° dissolve 36 parts of salt; and at 32°, the quantity dissolved is rather larger.

Impurities.—The salt met with in commerce in this country is sufficiently pure for all dietetical and therapeutical purposes; and its low price is a sufficient guarantee against its adulteration. In France, however, serious accidents have happened in consequence of the use of sophisticated salt.

Composition.—The crystals of this salt contain water, lodged mechanically between the plates of the crystal, but no combined water: they consist of

1 atom chlorine....	36
1 atom sodium	24
	60

Its formula, therefore, is N Chl.

Characteristic tests.—The yellow tinge which it communicates to the flame of alcohol, shews it to be a soda salt. Nitrate of silver readily detects the chlorine, by producing a white precipitate soluble in ammonia, and insoluble in nitric acid.

Physiological effects.—In discussing the medicinal effects and uses of salt, we must not overlook its dietetical properties. We all know that it is largely employed as a seasoning to our food, and appears to be indispensable to the preservation of health and life, though the quantity taken by different individuals is exceedingly various, some having a much greater relish for it than others. What may be its particular use in the animal economy, we know not. It is an essential constituent of the blood, and is found in several of the secretions; for example, the urine, the bile, the tears, &c. Doubtless, the free hydrochloric acid of the stomach is obtained by the decomposition of the common salt, as is also the soda found in the blood and bile.

Considered in a therapeutical point of view, chloride of sodium is to be regarded in its local operation as an irritant. Taken into the stomach in large quantity, (as a table spoonful) it excites vomiting, while thrown into the large intestines, it causes purging. In moderate quantities, we regard it as promoting digestion and assimilation, and assisting to keep the bowels regular. It has been found to be an efficacious anthelmintic, and it is said that those who take little or no salt with their food are very subject to intestinal worms. Dr. Paris tells us that Lord Somerville, in his address to the Board of Agriculture, states that the ancient laws of Holland "ordained men to be kept on bread alone, *unmixed with salt*, as the severest punishment that could be inflicted upon them in their moist climate; the effect was horrible: these wretched criminals are said to have been *devoured by worms* engendered in their own stomachs." In further proof of the anthelmintic powers of salt, a case published by Mr. Marshall, in the 39th vol. of the Medical and Physical Journal, may be referred to. A lady who had a natural aversion to salt, was most dreadfully affected with worms during the whole of her life.

Every one knows that the use of much salt causes thirst. The continued immoderate employment of it is said to excite scurvy. Moderate quantities of it seem to produce tonic effects on the system.

Uses.—(*a.*) *Internally*—salt is sometimes useful as an *emetic*; for example, in narcotic poisoning, in the absence of other more useful caustics, one or two table spoonfuls of salt may be taken in a tumblerful of water. So also in malignant cholera it is

often preferred as a vomit to other agents. We rarely employ it as a *purgative*, though its repeated use must be attended with this effect. As a chemical *antidote* it is administered in poisoning by nitrate of silver: the chloride of silver, which is formed being, according to Orfila, inert. As an *anthelmintic* it has been administered with advantage. In scrofulous subjects it has sometimes been employed as a *tonic*; and in alvine hæmorrhages as an *astringent*.

In several diseases it is well known that the blood undergoes alterations in its physical (and in many cases, doubtless, also in its chemical) properties. Thus in some very fatal diseases, (more especially cholera) it seems there is a deficiency of the saline constituents, and it has, therefore, been inferred, that the most efficacious treatment is the employment of saline remedies. But this, however, is not a necessary inference, since, granting that the alteration in the quality of the blood is constant, it must be regarded as an effect of the disease, and not as constituting its essence. During the late severe visitation of cholera in this country, the saline treatment was most extensively tried, and in the opinion of many was very successful, but by others was regarded as useless.

(*b.*) *Injected into the veins.*—Practitioners were not content with exhibiting salines by the stomach in cholera, but injected them into the veins, sometimes to an extent hardly credible. Thus one writer tells us that from 5 to 10 pounds of the saline solution (composed of two drachms of chloride of sodium, two scruples of carbonate of soda, and sixty ounces of water, at the temperature of 108° or 110°), should be injected in an adult, and repeated at larger or shorter intervals, as the state of the pulse and other symptoms may indicate. In one case upwards of 31 pounds were injected in the course of 53 hours. In another case, 30 lbs. were injected in 20 hours!! These injections were had recourse to on the ground that the evacuations upwards and downwards are in reality the serum of the blood; and that we ought as speedily as possible to replace it by injections into the the veins. I must refer you to the 9th and 10th volumes of the MEDICAL GAZETTE for cases in which this practice was adopted.

(*c.*) *Injected into the rectum.*—Salt is an ingredient in the common enema usually composed of one or two table spoonfuls of salt dissolved in a pint of gruel. Sometimes, however, we employ a saline solution to cause the expulsion of worms from the large intestines.

(*d.*) *Externally*, salt has been employed in various cases: thus it is added to water for baths, affusions, &c., to render it more stimulant; as a counter-irritant, a strong solution has been applied to the skin over glandular swellings, &c.

In Germany, a favourite remedy in obstinate cough, hoarseness, and *phthisis laryngea*, is the *testicles of the herring* (*Testes Harengi*), taken in the morning fasting!! Ritter, Neumann, Frank, Siemerling, and Hufeland, have borne testimony to their efficacy, which is said to be owing to the common salt they contain.

CALCIUM.

The compounds of this metal which I shall notice as being medicinal agents are—

1. *Lime*, or the oxide of calcium, and its *carbonate*.
2. *Chloride of calcium*.

1. *Lime*.

History. — Lime (called also *calcareous earth*) has been known from the most ancient times, but the nature of the process for obtaining what is called *quicklime* was first explained by Black, in 1755. In 1808, Davy discovered that lime was composed of oxygen and a metal (*calcium*).

Native state.—It is found in a state of combination both in the organized and inorganized kingdoms.

Preparation.—It is usually obtained by burning the carbonate among coals in a kind of wind furnace, called a *kiln*. In the Pharmacopœia are two formulæ for making it; one consists in heating white marble in a crucible,—the other in heating shells in the same manner. But for pharmaceutical purposes neither of these processes is followed, the common quicklime being usually sufficiently pure for medicinal use.

Properties.—It is a white brittle substance, of an acrid alkaline taste, having a strong alkaline reaction on turmeric and cabbage infusions.

Composition.—Quick-lime, or pure lime, consists of—

1 atom oxygen	8
1 atom calcium	20
1 atom lime	28

Its formula is Ca.

Slacked lime is prepared by pouring water on lime; heat is evolved, the lime falls to powder, part of the water is dissipated in the form of vapour, while the remainder unites with the lime to form *slacked lime* or the *hydrate*, and which is composed of one atom of lime and one of water.

Its formula is Ca H.

Lime water is easily procured by digest-

ing lime in distilled water. It is a curious though not isolated fact, that lime is more soluble in cold than hot water. Thus a pint of boiling water will dissolve only 5·6 grains of lime, whereas the same quantity of water at 32° will dissolve 11·0 grains. The solution is colourless and transparent, but by exposure to the air soon becomes covered with a film of the carbonate, which precipitates to the bottom, and is succeeded by another. By evaporating it under the air-pump receivers, crystals of lime may be obtained. Lime water has an alkaline taste, and reacts as an alkali on vegetable colours.

Characteristic tests.—Carbonates and oxalates precipitate solutions of lime, and of the calcareous salts: a solution of chloride of calcium gives an orange tinge to the flame of alcohol: dilute solutions of lime are not precipitated by sulphuric acid, or the sulphates.

Physiological effects.—Lime is a powerful escharotic and irritant, but less powerful than the caustic alkalies, probably in consequence of its less solubility. When lime water is applied to any of the mucous surfaces, it acts as an astringent, diminishes secretion, and causes dryness of the part; and when swallowed, has a tendency, therefore, to produce constipation. It neutralizes any acid matter it may meet with, and forms therewith a calcareous salt. The action of lime on the system is somewhat different from that of the alkalies, for it is more of a tonic and astringent nature; in consequence of which Vogt ranks this substance between zinc and the alkalies. Furthermore, it is said that the inordinate use of lime does not bring on a scorbutic diathesis, like that of the alkalies.

Uses.—Lime has been employed as a *caustic*, but it is not often resorted to now for this purpose. As an *antacid* lime-water may be employed to neutralize acid which may have been introduced into the stomach from without, or an excessive secretion of acid; however, for the latter purpose the carbonate is to be preferred. As an *astringent* it has been applied to ulcers, attended with an excessive discharge; and in some cases its power in this respect has appeared to me astonishing. In various affections of the alimentary canal, also, it has been employed, on account of its astringent powers; for example, in diarrhœa, especially when the mucous discharge is very great, and the inflammatory symptoms have subsided; so, also, it is used in leucorrhœa, gleet, &c.

As a *tonic* it has been employed in scrofula, dyspepsia, &c. At one time it had great celebrity as a lithontriptic. It constitutes one of the active ingredients in Mrs. Joanna Stephens' "remedy for the stone," the other ingredient being soap, which she gave with the view of keeping the bowels open. As this lady gained great celebrity by her mode of treatment, great interest was felt in endeavouring to discover the medicines she used, and she therefore offered her remedy to parliament. A committee of professional men was appointed to examine the efficacy of her treatment, and the remedy was given to a patient known to have a calculus; he soon got relief, and no stone could afterwards be felt in the bladder. Parliament, therefore, purchased her secret for 5,000*l.*, the grant for which you will find gazetted in June 1739. But, alas for the lithontripic, some time afterwards, the patient died, and on his body being examined, the calculus was found undissolved, but lodged in a pouch communicating with the bladder. Mixed with linseed oil, lime-water forms a kind of soapy mixture, often used with great advantage as an application to burns. Lime constitutes one of the active ingredients in depilatories.

Carbonate of Lime.

History.—Dr. Black was the first to explain the nature of this compound.

Native state.—It occurs in both kingdoms of nature. In the crystallized state it is called *calcareous* spar. In the uncrystallized forms it presents many varieties, of which I may just instance marble, chalk, and marl. It is found in most mineral waters, being held in solution by an excess of carbonic acid. In the animal kingdom it is found in the crustacea, in egg shells, in Russian castor, &c.

Preparation.—In the Pharmacopœia, native chalk is prepared by elutriation—that is, by stirring it up in water, and pouring off the liquid from the heavier particles.

Properties.—It is a soft white substance, too well known to require much description.

Composition.—It consists of

1 atom of carbonic acid	22
1 atom of lime	28
	50

Its formula, therefore, is $Ca\ddot{C}$.

A small portion of hygrometric water is usually present.

Characteristic tests.—Its effervescing with the strong acids readily distinguishes it as a carbonate, while the tests for lime already mentioned will easily indicate the base.

Physiological effects.—It is antacid and absorbent. Taken in very large quantities by a patient affected with pica, Weickardt states that it occasioned total loss of appetite, obstinate constipation (as in lead colic), and emaciation.

Uses.—It is sometimes employed externally as an absorbent, but more frequently internally in diarrhœa.

Administration.—It is usually given suspended in water, as in the *chalk mixture* of the Pharmacopœia.

Sometimes it is used as an adjunct to opium, as in the *compound chalk powder* of the Pharmacopœia. The *aromatic confection* contains chalk, mixed with aromatics.

Chloride of Calcium.

History and synonymes.—This salt, commonly termed *muriate of lime*, was known in the fifteenth century.

Native state.—It is found in sea and many mineral waters.

Preparation.—It is a product in the manufacture of the sesquicarbonate of ammonia; but it may be readily obtained by saturating hydrochloric acid with carbonate of lime.

Properties.—It occurs in regular six-sided prisms, which are very soluble in water. When heated, it melts, and may be deprived of its water.

Composition.—It essentially consists of chlorine and calcium, but in the crystallized state contains water.

	Fused.	Crystallized.
1 atom chlorine,	36	36
1 atom calcium.	20	20
6 atoms water . .	0	54
	56	110

Characteristics.—The tests for this salt are the same as those for hydrochloric acid and lime, already mentioned.

Physiological effects.—In small doses it is said to promote the secretions of mucus, urine, and perspiration, and to have a specific influence over the glandular and lymphatic system, the activity of which it increases. In larger doses it excites vomiting and purging, injures the digestive process, excites the pulse, &c. Hufeland says it is more irritant than the chloride of barium, and that its use requires great caution. In very large doses it causes an affection of the cerebro-spinal system, indicated by trembling of the limbs, convulsions, insensibility, and paralysis, with small pulse, &c.

Uses.—It has been principally employed in scrofula and glandular enlargements; and also in chronic skin diseases, rheumatism, &c.

Doses.—A few grains dissolved in water, gradually increasing the quantity and the frequency of the times of exhibition.

MAGNESIUM.

The compounds of this metal which I have to notice are—the *oxide*, or *magnesia*, and its *carbonate* and *sulphate*.

Magnesia.

History and synonymes.—It was first chemically distinguished from lime in 1755, by Dr. Black, who also shewed the difference between magnesia and its carbonate. It is commonly termed *calcined magnesia*, and sometimes *talc earth.*

Native state.—It is found in both kingdoms of nature: thus the hydrate, carbonate, sulphate, borate, silicate, and nitrate, are found in the mineral kingdom; and the phosphate in animals.

Preparation.—It is obtained by exposing the carbonate to a full red heat in crucibles, so as to drive off the carbonic acid.

Properties.—A fine white light powder, tasteless, but reacting slightly alkaline on vegetable colours (turmeric and cabbage infusion.) It is soluble in water,—more so in cold than hot water.

Composition.—It is composed of—

1 atom oxygen	8
1 atom magnesium	12
1 atom magnesia	20

Its formula is $\dot{M}g$

Characteristic tests.—It is not precipitated by the ferrocyanurets or hydrosulphurets. The monocarbonates of the alkalies (though not the bicarbonates) precipitate it white: from lime it is distinguished by not being precipitated by oxalic acid or the oxalates: it is insoluble in alkalies, and hence is distinguished from alumina. Ammonia with phosphate of soda precipitates the white ammoniacal phosphate of magnesia from solutions of this earth.

The *effects* and *uses* are similar to the sub-carbonate.

Subcarbonate of Magnesia.

History.—This preparation is also called *magnesia alba*, and the *carbonate of magnesia.* It was exposed for sale at Rome at the commencement of the eighteenth century, by Count di Palma (hence the name it received, *Comitissæ Palmæ pulvis*), and, in 1707, Valentini informed the public how it might be prepared.

Native state.—Native carbonate of magnesia constitutes the mineral called *magnesite*,—and is said to compose a range of low hills in Hindostan. The native *hydro-carbonate of magnesia*, a substance very similar to the magnesia alba of the shops, occurs in New Jersey.

Preparation.—Subcarbonate of magnesia is prepared by the action of the alkaline monocarbonates (soda or potash) on the sulphate of magnesia; washing and drying the powder. Sometimes it is made up, while drying, into large square masses

with bevelled edges, or into small cubes. Two kinds of subcarbonate of magnesia are kept in the shops—the light and the heavy.

Light or *flocculent subcarbonate* is prepared by dissolving 8 lbs. of sulphate in 48 lbs. of cold water, and precipitating by 13 lbs. 6 oz. of the monocarbonate of soda, dissolved in twice its weight of cold water, and washing the precipitate with cold water. The compound thus obtained consists of—

Carbonic acid . . .	32	100
Magnesia	33	
Water	35	

Heavy or *gritty subcarbonate* is prepared by dissolving 8 lbs. of the sulphate in 48 lbs. of boiling water, and adding thereto 9 lbs. 6 oz. of the monocarbonate of soda dissolved in 18 lbs. of boiling water, and keeping the mixture boiling for 15 minutes. This compound consists of—

Carbonic acid . . .	35	100
Magnesia	42	
Water	23	

Properties.—The *magnesia alba* of the shops is a white, inodorous, and almost tasteless powder, very slightly soluble in water.

Composition.—It is not a neutral salt, but a mixture (mechanical or chemical) of *carbonate* and *hydrate* of magnesia,—and hence might be termed the *hydro-carbonate*. Now, as the salts from whence it is procured are neutral, it is evident part of the carbonic acid must have escaped. The relative proportions of carbonate and hydrate are liable to variation, and hence, I believe, these two compounds are not chemically combined; but Berzelius entertains a different opinion. Berzelius gives, as the composition of magnesia alba,

Carbonic acid	35·77	or	3 atoms hydrated carbonate of magnesia	153
Magnesia	44·75		1 atom hydrate of magnesia	29
Water......................	19·48			
	100·00			182

And its formula would be—$(\dot{Mg}\,H) + 3\,(\dot{M}\,\ddot{C}\,\dot{H})$

Physiological effects and uses of magnesia and its subcarbonate. — Both preparations neutralize acids,—one without, the other with effervescence. As antacids, they may be employed in poisoning by the mineral acids, or in dyspeptic complaints accompanied by excessive secretion of acid. In the latter cases the pure magnesia is preferable to the carbonate when there is much flatulence.

Magnesia and its subcarbonate diminish the secretion of lithic acid by the kidneys, and on this account are employed in those forms of lithiasis attended with an excessive secretion of this acid or of the lithates. It is probable, therefore, that magnesia becomes absorbed. It has an advantage over the alkalies in these cases, in not being so apt to produce disorder of the digestive organs.

Magnesia and its subcarbonate promote secretion from the alimentary membrane, and in large doses act as laxatives. For this purpose it is employed as a mild purgative for children; in affections of the rectum (as stricture and piles), in diarrhœa, &c. The objection to the repeated and continued use of magnesia is, that it sometimes accumulates to a large extent. In one case recorded, a mass of from four to six pounds was found in the colon six months after the patient had ceased to employ any magnesia.

Administration. — We employ either of these preparations in doses of from a scruple to half a drachm.

Sulphate of Magnesia.

History and synonymes.—This salt, discovered by Grew in 1694, has been known by various names, such as *Epsom* or *bitter salt*, *Sal Anglicum, Sal catharticum, Vitriolated magnesia*, &c.

Native state.—It is met with in sea-water, and many mineral waters; it occurs as an efflorescence in other minerals, and is found in the mineral called *reissite.*

Preparation.—At one time it was prepared from the Epsom waters, then from *bittern* (the liquid left after common salt is deposited from sea-water.) In Italy it is prepared by roasting schistose minerals containing sulphur and magnesia, by which process the sulphur is converted into sulphuric acid.

Magnesian limestone (a mineral composed of carbonate of magnesia and carbonate of lime) is the substance from which Epsom salts are now manufactured in this country. It occurs in large quantity in several counties. The mineral being calcined, and thereby deprived of its carbonic acid, is mixed with just as much pyroligneous acid as will saturate the lime,—by which means acetate of lime is procured in solution, while the magnesia is left free. The latter is then converted into the sulphate either by adding sulphuric acid or the sulphate of iron: if the latter be employed, the oxide of iron is precipitated.

Properties. — The primary form of the crystals of this salt is a right rhombic prism. Their taste is cooling and bitter.

At 55°, 100 parts of water dissolve 90 of the crystallized salt.

Composition.—The crystals consist of

1 atom sulphuric acid ..	40
1 atom magnesia	20
7 atoms water..........	63
	123

The formula, therefore, is $\dot{\text{M}}\text{g}\ \dddot{\text{S}}\ 7\ \dot{\text{H}}$.

Physiological effects and uses.—It acts as a mild purgative, increasing the secretion as well as the peristaltic motion of the alimentary canal. It is commonly regarded as a cooling or antiphlogistic purgative, and, therefore, well adapted for febrile and inflammatory cases. It is quite analogous to the sulphate of soda, both in its effects and uses. It is rarely given alone, but generally with more stimulating purgatives, such as senna. Its usual dose is from 2 to 8 drachms.

ALUMINUM.

The only compound of this metal employed in medicine is the double salt, commonly termed alum.

Aluminous Sulphate of Potash, or Alum.

History and synonymes.—Although the term alum occurs in the writings of Herodotus and others, it is not quite satisfactorily ascertained that it referred to the salt now bearing this name. On the contrary, the learned Beckmann thinks it alluded to sulphate of iron, and that our alum was discovered in the East, in the 12th century. I must refer those curious in these matters to his *History of Inventions*, and to Parkes' *Chemical Essays*, for further information on this subject. The synonymes for this salt are, *sulphas aluminæ et potassæ*, and *potash sulphate of alumina*. The latter term, though adopted by Dr. T. Thomson, of Glasgow, seems to be objectionable, since it is clear the sulphate of potash, and not the sulphate of alumina, is the basic body.

Native state.—It is found native in the neighbourhood of volcanoes, under the name of *native alum*, *alum stone*, *&c.*

Preparation.—The method of preparing alum is not the same in all places. Thus the process at Whitby is different to that at Paisley. *Alum slate*, or *schistus aluminaries*, contains sulphuret of iron, alumina, and a bituminous substance. By roasting, the sulphur is oxidized and converted into sulphuric acid, which, with the alumina, forms sulphate of alumina: this is converted into alum by the addition of a salt of potash.

Properties.—This salt usually crystallizes in octahedrons. Its taste is acid and astringent, but also somewhat sweetish. When heated, it melts in its own water of crystallization, loses 44 per cent. of water, and forms *burnt alum*. It is soluble in three-fourths of its weight of water.

Composition.—In consequence of the uncertainty of the atomic weight of alumina, chemists are not agreed as to the atomic constitution of this salt.

	Thomson.		*Berzelius.*	
Sulphate potash ..	1 atom =	88	1 atom =	88
Sulphate alumina ..	3 atoms =	174	1 atom =	174
Water	25 atoms =	225	24 atoms =	216
		487		478

Physiological effects.—The local effects of alum are those of a powerful astringent. Applied in small quantities to the gastro-intestinal membrane, or in the form of a dilute solution, it diminishes secretion and exhalation, and thereby causes dryness of the part. In large doses it strongly contracts the stomach, occasions vomiting, and even purging, and acts as a local irritant. In some persons alum causes constipation. The salt is supposed to become absorbed, and to act as a tonic on remote parts of the body.

Uses.—We employ alum to diminish discharges from the mucous membranes: thus solutions of it are injected in leucorrhœa and gleet, or applied to the eye in purulent ophthalmia, especially of children, and taken internally in chronic diarrhœa. Applied to wounds, it is used as a styptic; and for the same purpose it is employed in internal hæmorrhages of an atonic character. To produce contraction or corrugation of parts it is sometimes used; for example, in relaxed uvula, or sore throat. It has been employed also in intermittents.

Administration.—Internally it may be given in doses of from gr. x. to half a drachm. In the Pharmacopœia there is a *compound solution of alum*, containing alum and sulphate of zinc.

In letting of blood three main circumstances are to be considered,—*quis*, *quantum*, *quando*: and, as Aretæus saith, *before you let blood, deliberate of it.*—Burton.

ON THE

POISONOUS PROPERTIES OF HEMLOCK,

AND ITS ALKALOID CONIA *.

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Few poisons are of greater interest, in a historical or scientific point of view, than hemlock. It has been known ever since the most classic periods of antiquity, being generally believed to have been the κωνειον of Nicander and Theophrastus, and commonly thought to have been the poison with which state-criminals were despatched in ancient Athens. Since that period it has occupied a prominent place in all works on Toxicology; and it has been immemorially familiar as a deadly poison to the vulgar in every part of Europe, where there is scarcely a country or even a province which does not produce it in abundance. For nearly a century, too, since the writings of Baron Storck, of Vienna, in 1762, it has been constantly in the hands of the physician as a remedy, and has been currently employed at different times in the treatment of some of the most common, as well as in some of the most malignant, of all the maladies to which the human body is liable.

To its importance, as thus indicated, the attention which it has received from scientific men, and more especially from the chemist and the physiologist, has been by no means commensurate. There is scarcely a chemical analysis of hemlock worth mentioning, till Giseke, in 1827, succeeded in concentrating its active properties in a compound with sulphuric acid, of such energy, that two grains killed a small animal in fifty-five minutes†; and it was not till 1831 that its active principle was detected and detached by Professor Geiger, of Heidelberg, and proved by him to be one of a new order of organic alkaloids,—not fixed and crystalline like those previously known, such as morphia, strychnia, cinchonia, and the like, but volatile and oleaginous in their physical form ‡. Prior to this discovery, the knowledge possessed of the physiological effects of hemlock was vague and meagre; and little has since been done to supply the defect. The ideas entertained by the Greek and Roman naturalists and physicians of the poisonous properties of the ancient κωνειον or *cicuta*, were for the most part contradictory or obscure. Their statements, however, were long adopted by modern physiologists without examination, and applied to the *Conium maculatum*, or spotted hemlock of botanists; and the small amount of original inquiry which has been attempted by late experimentalists has added little to the previous stock of knowledge. It is surprising, however, that some late researches were not carried farther than they have been; for it would appear scarcely possible for any accurate observer to attend carefully to the phenomena produced by hemlock and its alkaloid in their action on the animal body, without remarking that they are in many respects among the most interesting and extraordinary of all poisons.

These views, and the physiological facts to be subsequently related, were brought under my notice during an attempt made last autumn to repeat the analytic researches of Professor Geiger. As these researches are too little known in this country, or indeed out of Germany, and I have had occasion to confirm almost every fact advanced by the Heidelberg professor, I have thought it not inopportune to reproduce here the general heads of his analysis, as introductory to the principal object of this paper,—which is, "The Poisonous Properties of Hemlock, and its Alkaloid Conia."

A short time before the analysis of Professor Geiger, it was observed by Giseke, that, on distilling hemlock with water and caustic lime, an alkaline liquid, of a strong and peculiar odour, was obtained; from which, when neutralized by sulphuric acid and concentrated by evaporation, he separated with alcohol a substance of the nature of an extract, possessing the poisonous properties of hemlock in a very eminent degree. Two grains of it killed a rabbit in less than an hour. But Giseke was unable to detach either an alkaloidal or a crystalline principle.

Proceeding in the same line of investigation, but with more precision, Geiger first found that the distilled water of hemlock leaves, or of the green seeds, although it gives out very strongly the peculiar mousy odour of the plant, is scarcely if at all poisonous;—a remarkable fact, when we consider that this odour or aroma is usually thought to be a correct measure of the relative activity of different specimens, and to possess a narcotic or stupifying tendency on those exposed to it. The imagination has probably had much to do in the formation of these notions. At all events, we now know that the singular aroma of hemlock is owing, like other

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* Transactions of the Royal Society of Edinburgh, vol. xiii. *just published*.

† Journal de Pharmacie, xiii. 266; or, Archiv des Apothekervereins in Nördlichen Deutschland, xx. 97.

‡ Magazin für Pharmacie, xxxv. 72 and 259.

vegetable odours, to a volatile oil; and that this oil is very feebly if at all deleterious.

But if the green seeds or leaves, either after or before the separation of the volatile oil, be distilled with water and caustic potass or lime,—the heat being applied through means of a muriate of lime bath, to prevent charring,—it will be found that the liquid which passes over is strongly alkaline and highly poisonous; and I have also commonly observed, where ten or twelve pounds of seeds were worked in one operation, that an oily-like matter comes over with the first few ounces of liquid, which is soluble in acids, insoluble in alkalies, strongly alkaline in its action on turmeric, and of a powerful, peculiar, suffocating odour, allied to, yet by no means identical with, that of the fresh herb. This, in fact, is a small quantity of tolerably pure conia.

But the greater part of the alkaloid remains in solution in the water which is distilled over. If this distilled water be distilled anew, it is simply reproduced without any material change except some loss of strength. But if it be previously neutralized with an acid, such as the sulphuric, the volatile poisonous principle becomes fixed, and water alone is distilled over. The residuum consists of sulphate of conia, sulphate of ammonia, and resinoid matter, the resin and ammonia being produced by decomposition of a part of the conia under the operation of heat and the access of air. In order to obtain the conia, the mass is subjected to a mixture of two parts of rectified spirit and one of sulphuric ether, which leaves the sulphate of ammonia undissolved. And then, the ether and alcohol being distilled carefully off, the remaining sulphate of conia is heated gently with a little water and caustic potassa; upon which there is obtained in the receiver a watery solution of conia in the lower part, and floating on this a layer of nearly pure conia, colourless, transparent, and presenting the physical appearance of an oil.

In this state the conia contains a little ammonia and a fourth of its weight of water, the latter of which may be removed by chloride of calcium, and the former by exposing it to the air-pump vacuum so long as bubbles of gas escape. By neither process of purification, however, is the physical appearance of the conia materially changed.

Conia thus obtained has the appearance of a colourless volatile oil. It is lighter than water, of a very powerful diffusible repulsive odour, somewhat like that of hemlock itself, and intensely acrid to the taste. It has a strong alkaline action on reddened litmus or turmeric. It is readily soluble in diluted acids, which it neutralizes; but its salts have not yet been obtained in the crystalline form. It is sparingly soluble in water, to which it imparts its odour and taste. It also combines with about a fourth of its weight of water to form a hydrate of conia. Both this hydrate and the watery solution possess the property of becoming opaque when slightly heated, and recovering their transparency on being again cooled. When exposed to the air it quickly contracts a dark brown colour, and is slowly resolved into a resinous matter, with the disengagement of ammonia. This change takes place more promptly under the co-operation of heat; but even at common temperatures it is so apt to ensue, that unless the alkaloid be kept very carefully excluded from the air, discolouration will be accomplished in a few hours. When heated with water it readily distils over at the temperature of 212°, in the same manner as the volatile oils; but its boiling point is 370° Fahr. It cannot be distilled either alone or with water, without a considerable part being decomposed and converted into a resin. Like other vegetable alkaloids, it is an azotized principle; and, according to an analysis by Liebig, it is composed of—carbon 66·91, hydrogen 12·0, oxygen 8·28, and azote 12·8*.

By the process mentioned above, conia may be obtained from the leaves of hemlock collected immediately before or during inflorescence of the plant. It exists, however, in much larger proportion in the seeds when fully developed, but still green. Even in them the quantity is small: from forty pounds I obtained about $2\frac{1}{2}$ ounces of hydrated conia. Geiger states that he obtained a still larger proportion from the ripe seeds; a result, however, which has not been confirmed in the trials I have made. It is very probable that a much larger proportion exists in both the leaves and seeds than has yet been obtained. For at every stage of the process where heat is applied, however carefully the heat may be managed, it is evident, from the abundant formation of ammonia, that much of the alkaloid is decomposed.

An important fact observed by Geiger is, that the dried leaves of hemlock and some extracts of their juice do not contain any conia. This observation I have also had occasion to make in regard to various extracts. It is interesting, in relation to the well known circumstance that the greatest discrepancy prevails among medical men as to the activity of hemlock, not merely as a remedy but even also as a poison. Two drachms of extract have been given to a dog without marked effect

* Magazin für Pharmacie, xxxvi. 161.

of any kind, and even an ounce has acted only as a feeble poison*; while it will presently be found that the same preparation is sometimes a poison of exceeding energy.

These discrepancies are easily understood now, on considering the extreme proneness of conia to decomposition, provided the conia of Geiger be the true active principle of hemlock. From what has come under my observation, the extracts of hemlock may become feeble, if not even inert, in one of two ways,—either by the heat being continued after the concentration has been carried on to a certain extent, or by long keeping. On the one hand, I have always observed, that from the point at which the extract attains the consistence of thin syrup, ammonia begins to be given off in abundance, together with the modified odour of conia. And on the other hand, I have found extracts which were unquestionably well prepared at first, entirely destitute of conia in the course of a few years,—a remark which applies even to the superior extract prepared by Mr. Barry, of London, by evaporation *in vacuo*. The mode of ascertaining the presence of conia is simply to triturate the extract or other preparation with solution of potassa, upon which an odour of conia is given off. I have no doubt that potassa is in this way a test of very great delicacy.

Of the various extracts I have examined, that which has yielded the largest proportion of conia is one prepared by alcohol from the ripe seeds. Two hundred and twenty grains gave towards five grains of colourless hydrate of conia. From this preparation, indeed, it is probably to be obtained with more ease than from any other. I have prepared it quite colourless and free of all impurity but water, by exhausting ground hemlock-seeds with cold rectified spirit in a perculator; distilling off the spirit and concentrating in an open vessel over the vapour-bath till the residue had the consistence of syrup, and subjecting this extract, in a proper distilling apparatus, with its own weight of water and a little caustic potassa, to the heat of a concentrated boiling solution of muriate of lime. The conia passes over readily with the water, floating on its surface and quite colourless.

In the proximate analysis of organic substances, it is of primary consequence that the agents employed be such as will accomplish simple separation of the proximate principles from each other, without producing new compounds by a new arrangement of elements. Some chemists have entertained doubts whether even any of the methods of analysis at present in use fulfil correctly this condition. But all are agreed in thinking that the agency of strong acids or strong alkaline solutions, more especially when concurring with an elevated temperature, should in general be avoided, as tending rather to form new compounds than simply to detach compounds already formed by nature. Hence a question may justly arise, whether the substance I have been describing is the real active principle of hemlock, or a new product formed by the action of caustic potassa aided by heat?

Here it may be observed, in the first instance, that heat is not necessary for the development of conia in hemlock and its preparations; for its peculiar odour is at once disengaged from the powder of the seeds when treated with solution of potassa at ordinary atmospheric temperatures.

By far the most direct and satisfactory test, however, of the force of the above objection in such circumstances, is the effect of the detached principle on the animal body, and the relation the phenomena bear to those produced by the crude substance from which the principle is obtained. In the present case, experiment amply proves that the conia of Geiger concentrates in itself the properties of hemlock,—and, if not itself the true active principle, must contain it in large quantity.

The researches of Geiger on this head are few in number, and were chiefly confined to small birds as the subject of experiment. Nor does he seem to me to have correctly interpreted the phenomena, since he describes the animals as having been affected with paralysis and tetanic convulsions, and as presenting, immediately after death, congestion and loss of irritability of the heart, with unimpaired irritability of the voluntary muscles, the diaphragm, and the intestinal canal. The natural inference would be that conia proves fatal by paralyzing the heart.

On making trial of its effects on one of the higher orders of animals, I obtained results so different and so remarkable, that I was led to investigate its physiological action in detail. The facts thus brought under my notice will shew that this substance is one of the most extraordinary of all known poisons, looking either to its uncommon energy and subtilty, or to the peculiar phenomena and nature of its operation. In what follows I shall confine myself to a general summary, reserving the details of special experiments for an appendix.

I should premise that the anatomical details were conducted by Dr. Sharpey, and the whole experiments made in the presence of various practised observers.

* Orfila, Toxicologie générale, ii. 305.

This it is material to state, because in physiological inquiries like the present, where the incidents succeed one another with extreme swiftness, it is indispensable that the anatomical part be executed with facility, certainty, and despatch, and that the account taken of what passes be checked by several competent observers.

Conia is probably a deadly poison to every order of animals. It acts, at least, with great, and apparently equal energy, on the dog, cat, rabbit, mouse, kite*, pigeon*, sparrow*, frog, slow-worm*, earthworm*, fly, and flea.

It acts through every texture of the body where absorption is carried on readily—namely, when put into the stomach, or dropped into the eye, or inhaled into the lungs, or introduced into the cellular tissue under the skin, or brought in contact with the peritoneum, or injected directly into the veins. Its activity through these several channels seems on the whole proportional to the speed with which absorption is carried on by each texture; so that it is one of the poisons which act through absorption. Nevertheless, a fact will be mentioned by and by, which would indicate that something more than absorption into the blood is required before it can affect those vital functions, whose arrestment constitutes the cause of death, and the essence of its operation.

The activity of conia is not impaired, but rather the reverse, by neutralization with an acid. Geiger arrived at a different conclusion, for he says "its poisonous effect is greatly lessened by union with acids." Such a fact would be at variance with a law in physiology hitherto found to be universal; that poisons acting through absorption are not at all, or very little, altered in their effects by any change in chemical form, provided they continue equally soluble. As the salts of conia are more soluble than the alkaloid itself, we should expect them to act with at least equal energy. And, accordingly, I have always found that the activity of a poisonous dose was materially increased by using it neutralized with muriatic acid. It will follow as a corollary, that the discovery of a chemical antidote for conia or hemlock is extremely improbable.

The chief features in the action of conia are the following:—It is, in the first place, a local irritant; it has an acrid taste; when dropped into the eye, or on the peritoneum, it causes redness or vascularity; and to whatever texture or part it is applied, expressions of pain are immediately excited. But these local effects are soon overwhelmed by the indirect or remote action which speedily follows. This consists essentially of swiftly spreading palsy of the muscles,—affecting first those of voluntary motion, then the respiratory muscles of the chest and abdomen; lastly the diaphragm, and thus ending in death by asphyxia. The paralytic state is usually interrupted from time to time by slight convulsive twitches of the limbs and trunk in the early stage of the poisoning; but this is not an essential phenomenon. The muscular contractility of parts directly acted on,—as when a voluntary muscle, a loop of intestine, or the heart, is brushed over with conia or its muriate,—is sometimes impaired, sometimes almost immediately annihilated. But this effect, as will be evident from the details of the experiments, is not invariable. Under the remote or indirect action of the poison, the muscular contractility remains altogether unaffected: when an animal is killed with the poison applied to the eye, a wound, or the like, both the voluntary and involuntary muscles contract for a long time after death, when stimulated, either directly or through the medium of their nerves, by mechanical irritation, or by galvanism. The blood undergoes no apparent alteration, except those incidental to death by asphyxia; it coagulates firmly after death, if immediately withdrawn from the blood-vessels. The heart, contrary to Geiger's statement, remains wholly unaffected,—contracting vigorously for a long time after all motion and respiration, and other signs of life, are extinct,—and containing after death not florid, but dark blood in its left cavities. The external senses continue little, if at all, impaired, till the breathing is nearly arrested; and volition is also retained. The action of conia, in short, is exerted chiefly on the spinal cord. In its nature that action is the counterpart of the action of nux vomica, and its alkaloid strychnia. Strychnia irritates the spinal cord, producing violent permanent spasm of the muscles, and death by asphyxia from spasmodic fixing of the chest. Conia, on the contrary, exhausts the nervous energy of the spinal cord, producing general muscular paralysis, and asphyxia from relaxation.

Few poisons equal conia in subtilty or swiftness. A single drop put into the eye of a rabbit killed it in nine minutes; three drops used in the same way killed a strong cat in a minute and a half; five drops poured into the throat of a small dog began to act in thirty seconds, and in as many seconds more motion and respiration had entirely ceased. But the most extraordinary evidence of its power is obtained by injecting it into a vein. Magendie, speaking of the concentrated or pure prussic acid when similarly applied, compares its action to that of a cannon

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* Animals experimented on by Geiger.

ball or thunderbolt: "La foudre n'est pas plus prompte." Figurative as this language may be, it is the only mode of conveying an adequate idea of the effect of conia when injected into the blood. Proceeding to inject into the femoral vein of a young dog two grains of the alkaloid, exactly neutralized with thirty drops of diluted muriatic acid, I was prepared for great rapidity of action, and was going on the instant to observe the time by seconds; but on glancing for a moment over the watch at the animal, I observed it was dead. In two seconds, or three at farthest, and without the slightest warning struggle, respiration had ceased, and with it all external signs of life.

Of the effects previously related, some are most clearly seen where the progress of the poisoning is slow, others where the action is rapid. It is only, for example, where death takes place rather slowly, that we can satisfy ourselves of the maintenance of the functions of the external senses; because in other circumstances the instant invasion of paralysis of the voluntary muscles takes away all power of expression, by which alone we can judge of the state of the senses. But when the poison is given so as to operate slowly, then distinct evidence may be obtained that both sight, touch, and hearing, are retained so long as the most feeble power of movement is preserved, so that sensation may be followed by expression. The integrity of the circulation and muscular contractility, is, on the other hand, best shewn where death is prompt. When the poison acts slowly, the heart after death is found gorged, and contracting feebly or imperfectly;—a physiological phenomenon not connected with any peculiar action of the poison on the heart, but which is common to all modes of death by slowly-formed asphyxia. But where the action is swift, and asphyxia prompt and complete, the heart acts spontaneously with great force even in the higher order of animals for a great length of time. I have seen spontaneous contraction of the ventricles of the heart go on ten minutes, twenty minutes, nay, even thirty minutes, after death, in the rabbit; and have witnessed unequivocal contraction of the auricles when scratched even so late as after an interval of sixty minutes. The most striking illustration, however, of the integrity of the heart is obtained by keeping up respiration artificially when it has ceased: after the breathing had almost ceased in seventeen minutes in a dog poisoned with six drops through a wound, and when two minutes more would undoubtedly have put an end to life, artificial inflation of the lungs was commenced, and continued with occasional intervals for thirty-five minutes. During all that time the heart beat with its natural force, except when the inflation of the lungs was suspended;—the animal remaining all the while in a state of paralytic flaccidity, interrupted only by slight muscular twitches. It appears probable that there is scarcely any limit to the maintenance of the circulation under artificial breathing, except what may arise from the difficulty of imitating exactly the natural respiration, as well as from the several causes which occasion cooling of the body. There is little doubt, therefore, that where the dose of the poison is not very great, animation may be restored by maintaining the function of respiration artificially till the deleterious agent or its effects be thrown off,—just as in some other forms of narcotic poisoning. And when we consider the whole physiological phenomena, it will appear that this is the only treatment which promises material success.

There are several other physiological facts relative to the action of this poison, which are not devoid of interest, but which it would be tedious to dwell on here. They will be best examined by consulting the appendix of experiments. This department of my subject, therefore, may now be concluded with a few remarks on the question, through what channel the action of conia on the spinal cord is accomplished: does it act by being carried substantively with the blood to that organ, or by the transmission along the nerves of a peculiar impression made on the texture where it is directly applied? I must leave the question, however, in an unsettled state. Every physiologist who has attended to the late researches in this field, must agree that we are not at present in possession of any accurate criterion for settling the question in the case of any poison which acts remotely, that is, on organs at a distance from the part where it is immediately applied. That absorption is somehow connected with the action of conia, will appear from its activity seeming proportional to the activity of absorption in the texture with which it comes in contact. This inference would be strengthened if we could actually detect it in the blood after death; but my observations on this head are contradictory; for, in one instance, where the muriate of conia was put into the stomach, and secured there by a ligature on the gullet, its odour was distinctly remarked after death in the general cavity of the abdomen; while in another case, where death followed in ninety seconds the application of conia to the eye, not the slightest odour could be detected in the blood of the heart. It would seem to me, however, to be very nearly made out by a fact already men-

tioned, that, although absorption into the blood may be a part of the chain of consequences which attend the action of conia, yet this is not all; and that the poison does not act by being carried substantively with the blood to the spinal cord. I allude to its tremendous rapidity when injected into a vein. That it acts more sw ftly in this way than in any other, is evidence enough perhaps that it enters the blood before it operates. But farther, its effect, when thus introduced, is too swift for its action to depend entirely on the blood becoming poisoned, and itself acting on the spine; for it is impossible that, in three seconds, which was certainly the limit of interval when all voluntary movement and respiration had ceased, the poison could have passed with the blood from the femoral vein to the heart, from the heart to the extreme ramifications of the pulmonary artery, back again to the heart by the pulmonary veins, and, lastly, by the general arterial system to the spine. If a correct view of the facts be here taken, there scarcely seems any refuge for the physiologist, except in the doctrine, that conia acts by entering the blood, and producing on the inner membrane of the blood-vessels a peculiar nervous impression, which is instantly conveyed by sympathy along the nerves to the organ remotely and ultimately affected.

After these remarks on the properties of conia, it remains to be seen whether they coincide with what is known of the properties of hemlock itself. On this question hangs the ulterior one, whether conia is the true active principle of the plant.

[To be continued.]

CONTRIBUTIONS

TO THE

PHYSIOLOGY AND PATHOLOGY OF THE ANIMAL FLUIDS;

CONTAINING

Experiments and Observations on the Effects of certain Substances upon the Blood; on the Coagulation of the Blood; on the Difference between Membranous and Sanguineous Serum; on the Formation of the Buffy or Inflammatory Crust; on the Formation of Pus; on the Functions of the Lymphatic System; and on the Process of Sanguification.

By Andrew Buchanan, M.D.,
Junior Surgeon to the Glasgow Royal Infirmary.

[Continued from page 93.]

Physiological Reflections.

Are the properties of the animal fluids, indicated above, only interesting to the chemist, or are they not also interesting to the physiologist, as serving to explain some of the phenomena of the living body? I shall state my reasons for believing that these properties are intimately connected with the functions of the lymphatic system, and in that way constitute an essential element in the process of sanguification. I shall thereafter mention some other physiological and pathological phenomena, which appear to me to admit of elucidation on similar principles.

Functions of the lymphatic system.—The remarks I have to offer on the functions of the lymphatic system, and the process of sanguification, I commence by inquiring—What is the use of the serous fluid exhaled into the great cavities and cellular substance of the body? The doctrine taught by Magendie, and at present generally received in the schools of medicine, is that the serous exhalations and the fat are chiefly useful in the human body from their physical qualities. The serum of the great cavities is said to lubricate the viscera, and enable them to move easily upon each other; while the serum of the cellular substance performs the same function with respect to the cellular substance itself, and the muscular fibres and other organs between which it is interposed. The fat, again, is regarded as a kind of stuffing, intended to fill up the vacuities, and round off the asperities and inequalities in the structure of the body. Now, while I think that it cannot be disputed that the serum and fat answer the ends thus ascribed to them, I also think that it is to take a very narrow view of the utility of these secretions to conceive that they answer no more important ends in the animal economy. The observation of Pope will, I believe, be found to apply here, as in most other instances, to the works of nature as contrasted with those of man, to the level of which our interpretations of the former too often tend to degrade them:—

> In human works, though laboured on with pain,
> A thousand movements scarce one purpose gain:
> In God's, one single can its end produce;
> Yet serves to second, too, some other use.

The serum poured out by the exhalent vessels does not remain in the cavities and cells into which it is effused, but, being re-absorbed, is carried back into the circulation. When we consider the extent of the great serous cavities, and the universal diffusion of the cellular

membrane over the body, it must be obvious that the quantity of liquid passing through the never-ceasing processes of exhalation and re-absorption must be very great. We conclude, then, that a very large quantity of membranous serum is elaborated in the great cavities and cellular substance, and thereafter carried back into the circulation. By what route, and for what purposes, is it so carried back? There are only two known routes by which it can be carried back—through the veins, or through the lymphatics—and by which ever route it is carried back, it must modify the constitution of the mass of circulating blood; for on being mingled with the sanguineous serum, it will exert the same re-action within the body, which it has been shown above to exert on sanguineous serum out of the body. There are, however, many reasons which lead me to believe that the serum of the membranes is absorbed by the lymphatic vessels. There are also certain reasons which lead to the belief that a portion of the serum of the blood returns to the general circulation by the same route. Should the arguments urged in behalf of these opinions appear satisfactory, it will follow that the membranous and sanguineous serum which enter at the extremities of the lymphatic system, must be mingled together in the lymphatic vessels and glands, and must consequently be modified in their qualities; and in corroboration of that conclusion, it will be found that the liquid, which, after passing through the lymphatic vessels and glands, reaches the thoracic duct, differs in qualities both from the serum of the membranes and the serum of the blood, inasmuch as it possesses the property of spontaneous coagulability; a property which neither species of serum possesses separately, but which belongs to a mixture of the two.

The physiological doctrine stated above depends upon the three following fundamental propositions. 1st. That the lymphatic vessels absorb the membranous serum of the great cavities and cellular membrane. 2d. That there is a communication between the arteries and lymphatics, by which a portion of the serum of the blood passes from the former into the latter system of vessels. 3d. That the membranous and the sanguineous serum introduced into the lymphatic system are thoroughly mingled in the lymphatic vessels and glands, and form together a fluid possessing spontaneous coagulability, and constituting the basis of the clot or crassamentum of the blood. On each of these propositions I shall offer a few remarks.

1st. It is only of late years that any evidence would have been required for the first of these propositions, that the lymphatic vessels absorb the membranous serum from the great cavities and cellular membrane. The lymphatic vessels were universally believed, according to the doctrine of Hunter and Cruikshank, to absorb both the membranous serum, and every other absorbable substance, whether generated within the body or introduced from without.

Now, however, the experiments of Magendie, and the labours of Tiedemann and Gmelin, have restored the ancient doctrine of venous absorption. It has been certainly established that the veins are capable of absorbing, and there is every reason to believe that they do actually perform some of the most important parts of the absorbent function in the animal body. It appears to me, however, that in ascribing all absorption to the veins, and divesting the lymphatic vessels altogether of the absorbent faculty, the advocates of this new doctrine have carried it further than is warranted, either by experiment, or by sound reasoning. Substances injected into the cavities of the peritoneum it was found could not be discovered in the fluid of the thoracic duct by their colour, by their smell, or by the assistance of chemical re-agents. From the experiments the only fair inference is, that the substances in question are not absorbed by the lymphatics, but no conclusion can be more unwarrantable than that which Magendie has drawn, that the lymphatic vessels are altogether destitute of the absorbent faculty. For, although incapable of absorbing such foreign substances, the lymphatic vessels may still be capable of absorbing the peculiar fluid which they are always found to contain, and to absorb which may be their special function in the animal economy. This reasoning will appear in a clearer light by applying it also to the lacteal vessels, of which the absorbent function is incontestible. Magendie introduced into the stomach and bowels substances similar to those which he introduced into the cavity of the peritoneum, and

capable of being recognized by their colour, by their odour, or by their chemical qualities; and he never could detect any of those substances in the thoracic duct. He infers justly that the lacteals are incapable of absorbing such substances; but if he were to reason as he does with respect to the lymphatics, he would also infer that the lacteals do not absorb at all. The only legitimate conclusion which can be made from the experiments of Magendie with respect both to the lacteals and to the lymphatics, is, that neither set of vessels is capable of absorbing the substances foreign to the animal economy with which he experimented, but it is most illogical to infer that these vessels are destitute of the absorbent faculty. One of them is certainly known to possess, in the most eminent degree, the power of absorbing; and the complete analogy which, in every point of view, exists between these two sets of vessels, would lead us to infer that the same power is possessed also by the other. Still further, while the lacteal vessels are found to reject all other substances submitted to their action, it is known assuredly that there is a peculiar fluid which they suck up with avidity, being, as it would appear, the only fluid which it is the province of these vessels to introduce into the system. Reasoning, therefore, again from analogy, we may infer with respect to the lymphatic vessels, that while they are found by experiment to reject all other substances submitted to their action, there may be a peculiar fluid which they readily absorb, and which it is their special province to carry into the general circulation. This view of the subject, suggested by analogy, is confirmed by other arguments. It is, indeed, much less easy to establish the existence of a peculiar circulating fluid, with respect to the lymphatics, than it is with respect to the lacteals. In the lacteals the circulating fluid is opaque and white, the most superficial inspection is sufficient to establish the existence, and its origin is equally evident from the chyme formed in the alimentary canal during the process of digestion. In the lymphatics, on the contrary, the circulating fluid is transparent and colourless, or at least has, for the most part, very little colour. It is, therefore, so little conspicuous, that it can only be discovered on the most minute inspection. In spite of these difficulties, however, it is now certainly known that the lymphatic vessels do contain a peculiar fluid, to which we give the name of lymph: and moreover, it has been ascertained that this fluid is uniform in its character, in whatever part of the body it has been examined, shewing clearly that it must proceed everywhere from the same common source. Now, it is certain this fluid does not proceed from without, and it must, therefore, have its source in some of the animal fluids in contact with the extreme branches of the lymphatic system. The animal fluids, which are diffused all over the body wherever lymphatic radicles exist, and which most closely resemble the lymph in appearance, are the membranous serum of the great cavities and cellular membrane, and the serum of the blood. So closely does the lymph resemble these fluids in its qualities, that, while most physiologists have regarded it as identical with the menbranous serum, Magendie, and some of the earlier writers upon the lymphatic system, look upon it as the same with the serum of the blood, and Haller considers the whole three fluids as identical. There is, however, one property in which the lymph differs both from the membranous serum and from the serum of blood. The lymph posssesses the property of spontaneous coagulability. Now neither the membranous serum nor the serum of the blood coagulate spontaneously, but a mixture of these two fluids, while it exactly resembles the lymph in all its other qualities, possesses also the property of spontaneous coagulability. So far, therefore, as a judgment can be formed by comparing the qualities of the lymph with the qualities of the animal fluids in which it may possibly originate, it seems most probable that the fluid which circulates in the lymphatic vessels is a mixture of membranous and sanguineous serum. This conclusion will be much corroborated if the second proposition, stated above, can be established as correct. We proceed, therefore, to examine that proposition.

2d. The second proposition is, that there is a communication between the arteries and the lymphatics, and that a portion of the serum of the blood passes from the former into the latter system of vessels. The first part of this proposition—that there is a communication between the arteries and the lymphatics—

may be explained by supposing these two systems of vessels to be continuous with each other, in the same way as the arteries and veins; or, in other words, that there is a direct inosculation between the capillary arteries and the extreme vessels of the lymphatic system. It is a fact admitted by all the earlier writers upon the lymphatic system, and since confirmed by Haller, Meckel, Magendie, and many other distinguished anatomists, that penetrating injections thrown into the arteries return by the lymphatics. The same result is obtained when an injection is thrown into the veins or the excretory ducts of the liver, the kidney, or the testis. These facts seem to establish a free inosculation of the roots of these four orders of vessels—the arteries, the veins, the lymphatics, and certain excretory ducts; or perhaps, to speak more correctly, that these four kinds of vessels originate in the same capillary net-work, which Bichat has elevated to the rank of a distinct system of vessels, under the name of the capillary system.

Two other suppositions have been made, to explain the communication between the arteries and lymphatics: the one, that these vessels only communicate indirectly, the fluids being first effused into the surrounding tissues, and being then taken up by the lymphatics; the other, which is that of Mascagni, that the communication may be effected by means of lymphatic vessels, of which the mouths open on the internal surface of the arteries. I would remark, however, with respect to these two latter suppositions, that whatsoever explanation they may afford of the transition from the arteries to the lymphatics, of the fluids naturally circulating in these vessels, or even of the injections thrown by Magendie into the arteries of live animals, they cannot explain the passage of injections in animals some time dead; for in them the absorbing power of the lymphatic vessels is gone, and we cannot, therefore, expect to fill those vessels with our injections, any more than we can expect to fill the lacteals by injecting the small bowels. These opinions, therefore, appear to me hypothetical, and much less probable than the opinion first stated—that there is a direct communication, by inosculation, between the extremities of the arteries and those of the lymphatic vessels.

By examining the fluid contained in the lymphatic vessels, it is ascertained that the coagulable part of the blood does not pass from the arteries into the lymphatics, but only the serum, or the serum tinged with a certain quantity of colouring matter. It would appear from the experiments of Magendie, that the quantity of colouring matter varies according to circumstances. When animals are kept without food for several days, the red colour of the lymph becomes more and more deep with the duration of the abstinence.

Before proceeding to examine the third proposition, I would remark, that the origin which I have ascribed to the lymphatic vessels is by no means new, although it may appear so to those who have been trained in the exclusive doctrine, that the lymphatic vessels are the only absorbents, and that they have no other function than to absorb. But before the promulgation of this exclusive doctrine, the opinion generally entertained was, that the lymphatic vessels had the origin which is ascribed to them above. Whoever will take the trouble to look into the great work of Haller, will find him state distinctly, in as many separate sections, that the lymphatic vessels originate—1st, from the arteries, veins, and excretory ducts; 2d, from the cells of the cellular membrane; and, 3d, from the great cavities of the body. By the great cavities of the body, Haller does not mean the great membranous sacs, but the abdominal, thoracic, and cephalic cavities, in which those sacs are contained. He, however, states, in the most express terms, that the lymphatics originate from the surface of the serous membranes. Moreover, he ascribes to the lymphatics very nearly the same functions as are ascribed to them above—viz. to return a portion of the serum of the blood (vol. i. p. 256), and to take up the fluids effused into the cellular membrane and great serous cavities of the body (vol. i. p. 167). Farther, Haller regarded, as has been already said, the serum of the blood, the fluid exhaled into the great cavities and cellular membrane, and the lymph, as fluids of essentially the same nature. To this opinion I would subscribe, with the addition, that the serum of the blood and the serum of the membranes do not possess spontaneous coagulability, but when mixed together,

they form a fluid spontaneously coagulated, and in all its other qualities resembling the lymph.

3d. The third proposition need not detain us long; for, if it be granted that the serum of the blood and that of the membranes are introduced at the extremities of the lymphatics, it follows, as a necessary consequence, that these fluids must be blended together in their course through the lymphatic system, and must undergo whatever changes result from their reciprocal reaction. I shall here, however, endeavour to show that the disposition of the lymphatic vessels, and the structure of the lymphatic glands, are eminently adapted for mingling different fluids together, and possibly they may exercise this function of commixion on more fluids than we are at present aware of.

The distribution of the lymphatic system of vessels is obviously regulated by different principles from those that regulate the distribution of the other vascular systems. The division of the large arterial trunks, and the subdivision of their branches, is clearly intended to distribute the blood to every part of the body; the branches are uniformly smaller than the trunks from which they proceed, and though they may send off inosculating ramifications, still they proceed each to its separate destination. The same principle holds with respect to the distribution of the venous system, which is clearly intended to unite the small branches coming from every part of the body into larger branches, and these again into a few large venous trunks. In the disposition of the lymphatic vessels, the same principle is clearly recognized, since they are small at their origin, and becoming larger, at length terminate, most of them at least, in a single trunk. There is, however, obviously another principle by which the distribution of these vessels is regulated; they are continually dividing for no other purpose than again to re unite after communicating with the vessels running along side of them to the same destination, and the branches sent off are very generally of the same size as the trunks from which they proceed. This mode of distribution cannot, so far as I can see, be so easily explained as by supposing that it is intended to mingle thoroughly together the fluids circulating in the lymphatic vessels, and retard them in their course, so that they may have time to exert fully their reactions upon each other.

To mingle thoroughly together the fluids circulating in the lymphatic system, seems to be an object of so much importance in the human economy, that it is not entrusted, as in the bodies of many of the inferior animals, to the lymphatic vessels alone. A peculiar set of organs is superadded, viz. the *lymphatic glands.* The structure of those glands shows them to be essentially organs of commixion, and certainly no structure could be devised better adapted to answer that purpose. They may be regarded, according to the description of Mascagni, as altogether formed of a congeries of lymphatic vessels. The vessels which bring the lymph to the gland, and those which carry it away, may be represented as dividing each into an infinitude of small vessels, which resemble a net-work, from the frequency of their inosculations. The two capillary systems thus formed in the substance of the gland communicate with each other in two different ways—first, by the anastomoses of their extreme branches, and, second, by means of certain dilatations freely communicating with each other, which have been compared to the dilatations of the veins which occur in the erectile tissue of the penis. It must be obvious that this structure of the lymphatic glands is exceedingly well adapted for mingling together the fluids circulating in the lymphatic system, as well as producing such a slowness of circulation or stagnation of those fluids as may promote whatever reaction may be necessary for their intimate combination with each other. I am the more inclined to adopt the opinion here stated—that the lymphatic glands are organs of commixion, as I have never seen any theory suggested of the function of those organs which gives a satisfactory explanation of any useful purposes they serve in the animal economy.

I have only farther to remark with respect to the chyle, that there seems to be the same solicitude on the part of nature in mixing together the chyle and the lymph that there is in mingling the constituents of the lymph with each other. The chyle is absorbed by lymphatic vessels, and passes through lymphatic glands; for these vessels and

glands, when not engaged in carrying chyle, carry lymph, like other branches of the lymphatic system. Moreover, when the absorption of chyle is going on, there is a free intercommunication between the chyliferous lymphatics and those carrying transparent lymph; so that the former, inspected in the living body, are described by Haller as often seen emptying themselves of chyle, and filling themselves with transparent lymph. In this way the chyle, in its course to the thoracic duct, is mixed with the lymph coming from the lower extremities and abdomen, the mixture being begun by the inosculation of the chyliferous with the common lymphatic vessels, and completed in the substance of the lymphatic glands.

It seems to me probable that it is to this mixture that the chyle owes its property of spontaneous coagulability—such as we find it to possess when drawn from the thoracic duct. We do not, indeed, possess any certain data upon this subject, as the fluid, in the state in which it is extracted by the lacteal vessels from the chyme, cannot be obtained for examination. It is obvious, that when we extract chyle from the lacteals nearest the intestine, we can have no certainty that it is not mingled with membranous serum absorbed from the outer surface of the intestine, or from the mesentery, or with sanguineous serum transmitted from the capillary arteries. The researches of Tiedemann and Gmelin, however, render it certain that the chyle extracted from vessels just emerging from the intestines, differs in its qualities from that extracted from vessels emerging from the lymphatic glands. The chyle obtained from the former vessels is comparatively little coagulable, and in some of their experiments did not coagulate at all. It is also, for the most part, of a white colour, although varying in that respect according to the kind of aliments used. The chyle, again, obtained from the latter vessels, is highly coagulable, and the coagulum has generally a reddish colour, so as sometimes even to emulate the hue of perfect blood. Now this red colour is beyond all doubt derived from the admixture of lymph into the chyle. Accordingly, the distinguished physiologists mentioned above, who must be looked upon as the highest authorities upon this subject, embrace the opinions that the fibrin contained in the chyle, and on which its coagulability depends, is derived from its being mingled with lymph in the lymphatic glands. We may here advert to the opinions advanced by the same physiologists, that the colouring matter which gives the red tinge to the chyle is a secretion prepared in the spleen and the lymphatic glands, and that the fibrin derives its origin from albumen modified "by the numerous and diversified actions going on in the living organism." These opinions do not accord with those stated above; but it would be here out of place to discuss them. We shall only add farther, that if it be true that the chyle, as first absorbed from the intestines, is a fluid containing albumen, but without spontaneous coagulability, and that this fluid afterwards becomes spontaneously coagulable from admixture with the lymph, there is in the phenomenon some analogy with what was observed in the experiments mentioned above, in which fluids not spontaneously coagulable, like milk and the albumen ovi, concreted into a buffy coat when mixed with blood flowing from the vein.

[To be continued.]

OBSERVATIONS ON THE FATTY MATTER OF THE BLOOD.

To the Editor of the Medical Gazette.

Sir,

Should the following observations on the fatty matter of the blood be considered sufficiently interesting, I shall feel obliged by their early insertion in the pages of your valuable journal.

I am, sir,
Your obedient servant,
Golding Bird, F.L.S. &c.

44, Seymour Street, Euston Square,
April 12th, 1836.

There is, perhaps, no subject connected with animal chemistry, on which more discrepancy of opinion has existed, than on the true nature of the different forms of fatty matter; and of these the fatty matter of the blood presents probably the most interesting features. This substance is found in the serum as well as in the crassamentum of blood, and adheres with so much tenacity to the albumen and fibrin, even after they have been repeatedly washed with warm water to free them from any adherent

red particles, that some chemists have been induced to suspect that something like a chemical combination existed between the fat and albumen or fibrin.

The fatty matter is found in the crassamentum (mixed up, or perhaps combined with, the fibrin and red particles) in a larger proportion than in an equal weight of serum, combined with albumen. From Lecanu's experiments (*Journ. de Pharm.* Sept. 1831,) it appears that 1000 grains of venous blood contain 3·74 grains of fat, and of this quantity 1·31 grains may be regarded as elain, and 2·43 grains as stearin; and that the same weight of healthy serum contains 2·20 grains of fat, consisting of 1·0 grain elain and 1·20 stearin. From my own experiments I should conclude, that the proportion of fat, stated by Lecanu as existing in serum, is much above the average quantity: in three different specimens of fresh serum, of apparently healthy blood, I found the quantity present in 1000 grains to be 1·30, 1·60, and 1·20 grains respectively; it sometimes happens that this quantity is far exceeded; but this increase ought to be considered as a deviation from the normal state of the blood. A remarkable example of this occurred lately, in the female clinical ward of Guy's hospital, in which a woman, affected with well-marked diabetes insipidus, was bled from the arm, in a few hours, the blood had separated perfectly, the crassamentum was firm and contracted, but the serum resembled so much milk; some of this was decanted, and, in a short time, a layer of a cream-like substance appeared on the surface, which, when removed and agitated with æther, nearly entirely dissolved: this ethereal solution was of a golden yellow tint, and by spontaneous evaporation, yielded minute crystals of stearin mixed with the more fluid fat or elain: the total quantity of fat yielded by 1000 grains of this serum amounted to nearly 5·30 grains. A similar milky state of the serum has been observed in blood drawn shortly after a hearty meal, as was shown long ago by Dr. W. Fordyce (*Inq. into the Cause, &c. of Fever*, 1774, page 24), and has been supposed to depend upon an imperfect admixture of chyle with the blood; whatever may be the *cause* of this milk-like serum occurring, the physical explanation of its turbidity depends upon a considerable excess of fatty matter, forming a kind of imperfect emulsion with the albuminous and alkaline constituents of the serum.

The readiest mode of obtaining this fatty matter in sufficient quantity for examination, is by coagulating about a pint of serum (as free as possible from red particles) by means of a salt-water bath, breaking up the coagulum, and digesting it in repeated portions of boiling water, for the purpose of removing as much saline matter as possible, draining the insoluble portion on a piece of muslin, and then boiling it for a few minutes with strong alcohol or *pure* pyroligneous æther: the whole being thrown on a filter, previously moistened with a little alcohol, so as to pass through as quickly as possible, the filtered fluid on cooling deposits a little stearin, and, by gentle evaporation, a considerable quantity may be obtained; the elain being much more soluble, remains in the fluid after the deposition of the stearin, a second crystallization will be required to render it colourless: from the quantity of serum above mentioned, about 8 grains of tolerably pure stearin may be obtained.

A more simple (but less economical) mode of separating the fat from the serum, is to agitate the latter with sulphuric æther in a closed tube, and allow the mixture to repose; in a short time a fine yellow æthereal solution of the fat will rise to the surface, and may be decanted or removed by the pipette: this, by spontaneous evaporation, yields crystals of stearin mixed with elain. If a portion of the stearin prepared by either of these processes is dissolved in a small quantity of hot alcohol, and allowed to crystallize, some of the fat will be found to assume the form of plates, bearing, as some have supposed, no distant resemblance to cholesterine, or the fatty matter of the bile, which analogy appears at first sight to be strengthened by the facts that these crystals, on being immersed in strong sulphuric acid, assumes a fine pink colour, (which cholesterine is well known to do) and further, that they are not saponifiable by caustic alkalies. But over this latter circumstance, I have good reason to believe, there hangs an important source of fallacy, which becomes the more important, as it, in conjunction with the plate-like form of the crystals, and the re-action of sulphuric acid, has given rise to an idea lately

promulgated, (amongst others, I believe, by M. Denis) of the presence of cholesterine in the blood, as one of its normal constituents. I shall, therefore, attempt, as briefly as possible, to explain what I believe to be the true nature of these fatty crystals, and the cause of those peculiarities which have induced some chemists to suppose them to be composed entirely, or in part, of cholesterine.

Reflecting upon the entire insolubility of cholesterine in liquid caustic alkalies, I concluded that the best, and, indeed, only satisfactory mode of ascertaining its presence, would be by boiling the fat of blood in a pure alkaline solution, which would dissolve the elain and stearin, leaving the cholesterine untouched. Acting upon this idea, I prepared a considerable quantity of the fatty matter of the blood, and boiled it in a solution of pure soda for some time. An equal bulk of water was then added, and the whole allowed to cool. In a few hours a white and somewhat granular deposit had taken place, the supernatant fluid being quite limpid, and strongly alkaline, depositing a mixture of oleic, margaric, and stearic acids, after super-saturation with hydrochloric acid. The white deposit, from which the alkaline solution had been decanted, was washed with cold distilled water, in which fluid it appeared quite insoluble. A portion was then boiled in alcohol (specific gravity ·815), in which it readily dissolved, forming a limpid and colourless solution. On cooling it deposited numerous crystalline plates, possessing a pearly lustre. These crystals were soluble in æther, and when placed in strong sulphuric acid they assumed a deep orange-red tint, in all which circumstances they resembled cholesterine; but the following facts will serve to prove that this resemblance, however apparently close, is really fallacious, and depending upon a very superficial examination.

When the pearly crystals, obtained as above mentioned from this alcoholic solution, are exposed to heat in a platinum spoon, they fuse, catch fire, and burn with a large smoky flame to a white ash, which is *strongly alkaline, and effervesces with dilute acids*, and consists almost entirely of carbonate of soda. From this experiment it appeared probable that the supposed cholesterine was really nothing more than a combination of a fatty acid with an alkali. To determine this with certainty, some of the pearly crystals were dissolved in warm alcohol, and dilute sulphuric acid added guttatim, until no increased troubling ensued, arising from the deposition of sulphate of soda (formed by the union of the sulphuric acid with the soda existing in a state of combination with the fatty matter dissolved in the alcohol); which being allowed to precipitate, the whole was warmed, and the supernatant fluid decanted and evaporated over a vapour bath. The crystals thus obtained by evaporation were fine white needles, soluble in æther and alcohol, fusing, and then inflaming, on the application of heat, leaving not a trace of ash behind: the alcoholic solution of these crystals faintly reddened tincture of litmus. From these, as well as other circumstances which it is unnecessary to recapitulate, it was evident that these crystals consisted of nearly pure stearic acid; and that the pearly plates (resembling cholesterine), deposited from the alcoholic solution before the separation of the soda by sulphuric acid, were bi-stearate of soda, which Chevreul (*Sur les Corps Gras*, 1823) more than thirteen years ago, described as possessing a peculiar pearly lamellated appearance, and which certainly, on a superficial examination, resembles cholesterine very closely.

I am aware that an objection might be raised against the explanation I have offered, of the composition of the supposed cholesterine, on the ground that crystals resembling that principle are (as I have already mentioned) deposited from the alcoholic solution of the fatty matter of blood before the *artificial* addition of any alkali; but this crystalline deposit has been shown, by Berzelius (*Traité de Chimie*, vol. vii. p. 47) to consist of a combination of a fatty acid with an alkali naturally existing in the blood (stearate of soda), and hence it yields an alkaline ash on incineration.

If these observations are deemed sufficient to prove that cholesterine cannot be regarded as one of the constituents of healthy blood, it must follow that if ever it is detected in that fluid, it must be regarded as anormal; but, even in disease, I believe it to be of rare occurrence. I once, however, detected its presence (in a state of minute effusion) in the blood of a patient in Guy's Hospital, affected with acute icterus, com-

plicated with pneumonia and pleurisy, under the care of Dr. Addison. The serum of this patient's blood possessed a greenish-brown tint, and even tasted bitter after concentration: quantitative analysis proved it to consist of

Water	898·0
Albumen (including earthy phosphates)	92·40
Cholesterine	1·40
Fatty and biliary matter	2·20
Peculiar extractive and lactates	3·0
Alkaline carbonates, phosphates, and hydrochlorates	3·0
	1000

RAVAGES OF THE SCURVY,

ON BOARD THE "LADY JANE."

To the Editor of the Medical Gazette.

Sir,

Should you deem the following particulars, respecting the crew of the Lady Jane, whaler, of Newcastle, interesting, or in any respect worthy the attention of the profession, their insertion in your journal will oblige,

Your obedient servant,
James Williamson.

North Shields,
April 6th, 1836.

On the 14th March, 1835, the ship Lady Jane sailed from the Tyne, with a crew of twenty-six men, including officers and surgeon, intending to call at the Orkneys to complete her crew, by shipping twenty-six additional hands, making up the full complement of fifty-two. After a fine run of three days, we arrived at Stromness on the 17th, and having obtained the requisite number of men, sailed from that place on the 23d of the same month. At noon, on the 19th of April, we made the ice in latitude 62° 30′ N., where we were detained three or four weeks, endeavouring to procure fish; but, being frustrated in our attempts, we proceeded thence up the east side of Davis' Strait, as far north as lat. 72° N., with the intention of sailing round its north-west boundary, the usual fishing ground, in which further intention we were disappointed, by the ice not coming down as usual; when, on July 13th (having previously obtained one fish), we proceeded south, and on the 26th made the west land in lat. 68° 37′ N. Owing to a compact body of ice lying in that direction, we were prevented from a passage northwards, but continued in that latitude, made fast to the land-floe, in expectation of the ice opening, instead of which we became beset, and, with the exception of a few days in September, remained so until our liberation on Friday the 19th of February, 1836.

From the time of leaving the Tyne until the 10th of December we had little sickness on board, with the exception of one man labouring under phthisis pulmonalis, who died on that day, and it was not before the 23d of the same month that the first symptoms of scurvy began to manifest themselves among the crew, now dispirited by our long confinement, and the liberation of all the ships in company at one time, amounting to eight. From this period sickness increased amongst us, many abandoning themselves to despair, unable to take proper means for preserving cleanliness, and refusing to take any regular exercise. The cold, which from the time of being beset gradually became more intense, was, on the 22d of November, at 17° below zero of Fahrenheit, after which date we were accidentally deprived of the use of the thermometer. From the time of leaving port until the 5th of October, excepting about a fortnight in August and September, the crew had full allowance of provisions, consisting of 2 lbs. of beef or 1¾ lbs. of pork daily, together with pea-soup five days, and pudding on the other two of the week, beer while it lasted, and a liberal allowance of rum, finished about Christmas,—bread was allowed *ad libitum*. It should also be stated, that in addition to the ship's allowance, the men had their private stocks of tea, coffee, sugar, tobacco, &c., which were mostly expended by November. Water was procured by melting the snow off the ice, which latterly was strongly impregnated with salt.

On the 5th October, it was considered necessary to husband the stock of provisions, and every person on board was put on reduced allowance; consisting of half the above stated quantity of animal food, of pea-soup, pudding, &c., out of which the crew had to maintain twelve men belonging to a wrecked ship, and of nearly 3 lbs. of bread per week each man. Our vegetables, consisting of potatoes and turnips, occasionally given

out to the ship's company, were finished about September.

The first symptoms of the disease, which afterwards destroyed so many of our men, were as usual, tenderness of the gums, attended with a fœtid discharge, succeeded by a petechial eruption on the lower extremities, with œdema, stiffness of the ham-string tendons, and a general rigidity of the muscles. Passive hæmorrhage took place from the mucous membranes, varying according to the idiosyncrasy of the individual. In most cases were bloody stools, bleedings from the urethra, hemoptysis, and bleedings from the nose. The appetite was generally good, and when the patient was in bed he complained of no pain or uneasiness, excepting debility and dyspnœa, which on the slightest motion became extremely urgent. The men did not seem aware of their weakness, and indeed the utmost caution in moving them was necessary, after having been a few days in bed, several having fallen into fatal syncope on attempting to rise. In general the bowels were relaxed, but in other cases obstinately constipated. The pulse was somewhat slower and more feeble than natural. In this manner the disease generally advanced to a fatal termination, apparently the consequence of exhaustion. The whole crew were more or less affected with this disease; and up to our arrival at Stromness, on the 12th of March, 1836, twenty-two deaths had occurred on board. Subsequent to this period, five men died at the hospital provided by Captain Ross, under the care of J. M. Hamilton, Esq.

The last accounts from Orkney state that the remainder of the crew are convalescent.

TREATMENT OF HYDROPHOBIA.

To the Editor of the Medical Gazette.

Sir,

I have been much interested by Dr. England's case of hydrophobia, in your journal of last week. In a disease so truly horrible, any recommendation may be deemed admissible; and under this impression I send you these few lines, which may perhaps find a place in your valuable columns. In the above case, the chief mischief was referred to the *pharynx*, and the patient herself said, "that she would be quite well *if she could swallow*." Now it has struck me that on future occasions, where the spasm of the pharynx is so intense, it would be advisable to remove the cuticle at once, by the liquor ammoniæ, from the front of the neck, and then apply morphine immediately to the abraded part. The spasm may thus be reduced, and a further facility given for the introduction of one of Read's or Jukes's tubes into *the stomach*; whereby both the proper medicines and nourishment may be given to the patient. In this county there is a popular prejudice for *dipping* any unfortunate sufferer who has been bitten by a dog supposed to be mad. The mouth of the Severn is, I believe, the favoured place, and the process must be undertaken immediately or soon after the accident, no matter what be the time of year. A patient of mine, from Staffordshire, has lately informed me that several people were bitten last year, in his neighbourhood, by mad dogs, to whom the Ormskirk (is that the name?) medicine was given *effectually* as a preventive. However, we had better take all these stories *cum grano salis.*—I am, sir,

Your obedient servant,

Gloucestrensis.

April 12, 1836,

CASE OF INFLUENZA.

PROFESSIONAL COURTESY AND FAIR DEALING.

To the Editor of the Medical Gazette.

Sir,

I shall feel obliged by your inserting, in some corner of your periodical, the following case, with remarks regarding its nature and treatment, by Dr. Nicol, one of the surgeons to the Northern Infirmary at Inverness, and author of several excellent papers published in the Edinburgh Medical Journal. I should not have considered it sufficiently important for publication had it not given rise, in this quarter, to much disagreeable and unjust animadversion; and my first intention was to let it pass unnoticed, as all medical men are liable to be more or less exposed to such attacks.

I cannot for a moment suppose that the highly respectable medical gentleman with whom I consulted could give the slightest countenance to such aspersions, even if we had differed widely in opinion. None but the avowed charlatan makes pretensions to infallibility, and none but the ignorant or the foolish are deceived by those pretensions. Every candid medical man will readily acknowledge that he has often been mistaken; hence the advantage of consultations: and it would not be very creditable to the members of a liberal profession, were they, in order to establish their own reputation, to avail themselves of every paltry triumph which accident or even superior tact might afford them over a less fortunate brother. He who is found in the right to-day, may be found in the wrong to-morrow; but I do not intend to insinuate such a charge against the members of the medical profession in this quarter—indeed, I do not intend to impute bad motives to any one. The origin of the animadversions alluded to is certainly somewhat obscure, but I am disposed to attribute it chiefly to senseless gossip, which passing, of course, through a variety of media, has at last become fully charged with a highly noxious power. I have been induced to send these communications to the MEDICAL GAZETTE, because it is very generally read by the medical practitioners in this part of the country.

I am, sir,
Your obedient servant,
JAMES SYME.

Alloa, April 14, 1836.

Mr. —— was seized, on Sunday, the 25th January, 1836, with slight rigors and other febrile symptoms. He is a young man, rather thin, pale complexion, and of nervous temperament. He bathed his feet, and took a quantity of warm gruel at bed-time. He perspired very freely during the night, and on Monday morning Mr. S. was called to see him. He complained of great languor, severe headache, pain in the back, total loss of appetite, and intense thirst. He had vomited a little, and felt constant nausea. His pulse was upwards of 120, rather small; breathing quick; tongue coated with a thick brown fur; skin moist. An emetic was prescribed, which brought up a large quantity of bilious-looking matter. He afterwards took a dose of castor-oil, which brought away several dark-coloured stools. At bed-time he took a small dose of calomel, with a few grains of Dover's powder. The patient had previously complained of a cough, for which he had been using a squill mixture. The cough had now become more severe, and he still occasionally used the mixture. A Seidlitz powder was prescribed in the morning, and several stools, similar to the former, were passed in the course of the day. The cough had increased in severity, with some difficulty of breathing, but without pain in the chest. A quantity of leeches were applied to the chest, which bled freely. A blister was afterwards applied to the breast. At bed-time a dose of calomel and Dover's powder was again prescribed, and a Seidlitz powder in the morning, which was again followed by dark-coloured stools. The pulse had now become less frequent; the tongue cleaner; the bowels considerably improved; and the headache entirely removed. A wheezing cough, with some difficulty of breathing, still continued, attended with a moderate expectoration of frothy mucus, and the patient still complained of pain along the back, and felt very weak. At this period, being the fourth day from the attack, another medical practitioner was called in, and a solution of tart. antim. was prescribed, to be given at intervals, as far as the stomach could bear, which was continued for two or three days, and the squill mixture was again resumed.

The bronchial affection disappeared in about eight or ten days from the commencement. The patient has since been slowly and gradually recovering, but has not yet been able fully to resume his ordinary duties with his former activity, and still complains of weakness.

Alloa, April 1, 1836.

P.S. The above case having been written from memory, is not so complete in all its details as it otherwise might have been, but the outline is sufficiently correct and intelligible.

Inverness, April 12, 1836.

DEAR SIR,

I have been severely indisposed for some days, which must plead my apology for not replying to your esteemed communication sooner. The case which

you submit for my opinion is that description of influenza which has only been noticed in this country within the last few years. I am at this moment labouring under a second attack, and I regret to say that, in despite of every care and treatment, I progress very slowly in the way of amendment. The febrile symptoms and headache disappear in a few days, but the jaundiced feelings, unwillingness to work, loss of appetite, languor, and pain in the back and loins, with distressing cough, continue for weeks, and sometimes for months, resisting even mitigation from every description of treatment. I have many such cases here at present, and for your satisfaction beg to say, that the febrile symptoms are usually subdued after the manner narrated in your case; but he who expects that the sequelæ are to vanish immediately after the former have been subdued, however wise and well-directed his treatment may be, I fear will, in ninety-nine times in the hundred, be wofully disappointed; at least this is consistent with my experience; and I have tried ipecacuan, squill, calomel, tartar emetic, digitalis, opium, and colchicum, in all forms and mixtures, with little advantage. The subject of your case will be weak in the back, as well as generally, and have cough for a considerable time; at least this is my impression, and in place of censure, he should only be extremely grateful for the course you pursued.

You are quite at liberty to publish my opinion, only take care you publish the case exactly as it has been transmitted to me along with it.

I am, dear sir,
Yours very faithfully,
(Signed) John Inglis Nicol.

James Syme, Esq.
Surgeon, Alloa.

PURPURA HÆMORRHAGICA,

ATTENDED WITH MORTIFICATION AND LOSS OF THE FOOT.

To the Editor of the Medical Gazette.

Sir,

Will you have the goodness to insert the following case of purpura hæmorrhagica in your valuable journal, as it is the only one in which I have seen the loss of a limb from this disease.

I remain, sir,
Your obedient servant,
C. J. B. Aldis, M.A. M.B.
Inceptor Candidate of the Royal College of Physicians.

13, Old Burlington-street,
April 16, 1836.

John Tyrrell, æt. 38, coachman, admitted into St. George's Hospital, Sep. 21, 1831. Complains of "cold and cough, with fever;" very weak; sore throat, with superficial ulcerations on the velum pendulum, at the base of the uvula; deglutition difficult; pulse and skin natural; tongue clean; bowels costive; urine free.

His complaint began on Thursday week, with shivering and cold.

22. Bowels opened by the medicine; better.

24. Head and breathing oppressed yesterday; throat much relieved.

26. Abundant petechial eruption over the legs, which appeared on Saturday morning; griping pains in the stomach, with sickness; urine not free.

28. "Very bad these two nights;" has been sick. Bowels open; tongue white; pulse 100, oppressed.

30. Blood slightly buffed, of average firmness; sickness better. Pulse oppressed, 90; felt faint after the bleeding. Several clusters of vivid petechiæ appeared this morning about the elbows, arms, and knees; "has been less oppressed in the chest since they came out;" bowels not open to day.

Oct. 1. Feet very cold.

3. The eruption has nearly disappeared from the legs, but the right foot is covered with it (purpura), and is very sore. Pulse 90; tongue brown and dry; bowels not open.

6. Better, excepting the foot, for which *videat chirurgum.*

Note.—The foot has assumed a dark gangrenous character.

10. Slight discharge from the foot.

15. The cuticle of the foot is extensively detaching itself, and exposing the cutis in a brown and moist condition; it became painful last night, until the bed-clothes were supported by frame work.

22. Fresh appearances of petechiæ in the upper and inner part of the right thigh.

24. Still further effusion of petechiæ in the upper part of the right thigh, and also in both wrists.

27. The petechiæ, which had appeared in considerable number about right groin, are fading away, as well as the discoloration of both wrists.

He was transferred to the surgeon. The tarsus and phalanges of the right foot separated spontaneously, no ligature being required for any blood-vessel; the os. calcis remained. I accidentally met him a year after he left the hospital. His health was perfectly good, and he walked with the aid of crutches.

GERMAN MEDICAL INSTITUTIONS

HOSPITAL OF MUNICH.

To the Editor of the Medical Gazette.

Sir,

Munich is comparatively a healthy city, and is not subject to any specific endemic disease: situate 1700 feet above the sea, in an extensive plain, bounded southward by the chain of Tyrolean Alps, its atmosphere is light and dry, owing to which cause, to the cleanliness of its streets, and to the absence of abject poverty among its inhabitants, it is remarkably free from intermittent and typhoid fevers; notwithstanding an extensive tract of marshy and boggy land in its neighbourhood. To the same causes is ascribed its exemption from scrofulous affections, which are rarely seen in the inhabitants of the town; most of those in the hospital having been sent from the country. The most prevalent diseases during last autumn and winter have been fever, complicated with nervous and gastric irritation, erysipelas, and diarrhœa, with which last the greater number of patients in the hospital have been affected, and this disposition still continues in a modified degree, although within the last few weeks thoracic inflammation and bronchial irritation have also been extremely prevalent.

The practice resembles that of the older physicians; and the ancient nomenclature of diseases is not yet superseded by that based on pathological anatomy. The treatment is not exclusive, being grounded on existing indications, and varied according as the peculiarities in individual cases appear to require. Baths and enemata are but little employed, auscultation and percussion are not used, except now and then by Dr. Ringseis, professor of clinical medicine, whose examinations of patients and clinical discourses are minute and methodical, and whose diagnosis is generally very accurate. Other innovations of the French school, as the endermic method, lithotrity, the use of the speculum vaginæ, &c. have not been adopted. In one patient with a tumor occupying the greater part of the hypogastric region, who had been several weeks in the hospital, and whose case was considered to be exceedingly obscure, no manual examination, *per vaginam*, had been made, although the case appeared to me to be one of hypertrophy, or polypus of the uterus. Blood-letting, which was formerly in very general use, is now, comparatively, rarely employed; but in lieu thereof, antimonials, counter-irritants, and evacuants, are had recourse to,—leeches are, also, but seldom used. The reason assigned for this alteration is, that the medical constitution of Munich has very remarkably changed within the last six or seven years, inflammatory diseases requiring the abstraction of blood being much less frequent.

Among the remedies most in request are, emetics, which have lately been used with very great effect in gastric disorders and diarrhœa; tartarized antimony, in large and small doses; the decoctum antiphlogisticum, which consists of nitrate of potass, oxymel, and decoction of mallows; mild purgatives, especially the sulphate of potass in infusion of rhubarb, and infusion of rhubarb with ipecacuanha. Mercurials are not frequently given; except where evident hepatic derangement exists. Stimulants and bitters are often prescribed where no inflammatory action exists. The muriate of ammonia, the preparations of bark, the calamus aromaticus, are often employed in diseases indicating a want of tone; the former occasionally in sub-acute inflammation. In fever with gastric and biliary derangement, and in diarrhœa with vomiting or nausea, emetics are generally given at the commencement, and are succeeded by an infusion of rhubarb and ipecacuanha, or infusion of rhubarb with small quantities of sulphate of potass: where these are contra-indicated, the Liq. am-

mon. acet., salines, and, in some cases, the decoctum calami, are substituted; this treatment has been attended with great success. Erysipelas of the face, which is not uncommon at Munich, is generally treated in like manner, by emetics at the outset, and the subsequent exhibition of rhubarb, small doses of sulphate of potass, or tartarized antimony — a solution of supertartrate of potass being prescribed for ordinary beverage. Moderate bleeding, the tartarized antimony, and sinapisms, or blisters, are principally trusted to in combating thoracic inflammation; in which, however, Dr. Ringseis often abstains from bleeding, and gives large doses of tartarized antimony, which induce copious perspiration, and is generally followed by great relief. In bronchial inflammation and irritation, the tartarized antimony, sulphate of potass, ipecacuanha, oxymel, blisters, and hyoscyamus or cicuta in some demulcent mixture, are the remedies most frequently adopted.

The surgical and ophthalmic department of the hospital is superintended by Professor Von Walther, who combines, in most cases, internal remedies with the external treatment. Operations of importance, except cataract, are not of very frequent occurrence. Professor Walther usually operates by couching, and always prefers the keratonyxis, making the opening through the centre of the cornea, to the puncture of the sclerotic. Both the eyes of an old man were operated on in this manner a few days ago, and no unpleasant symptoms succeeded. The lateral operation of lithotomy was performed four days ago on a boy about ten years old; the stone was large, and some difficulty was experienced in its extraction. Peritoneal inflammation came on, which was treated by leeches to the abdomen, and by half-grain doses of calomel every two hours; this reduced the inflammation, and the patient is now going on well. The leg of another boy, about the same age, has been amputated by the flap operation within the last few days, for disease of the ankle-joint and bones of the tarsus. Exfoliation of a portion of bone was going on on the outside of the instep, but there was little swelling about the joint, the motion of which did not appear to be materially impeded, and the health of the patient was tolerable. Although I did not inquire particularly into the case, having only seen it once or twice before the operation, yet, from what I saw of it, I should have questioned whether the articulation were diseased to any extent. I was assured, however, that on examining the limb, the bones forming the joint were found to be carious: at all events, a case in that stage of disease would not have been considered to require amputation in the London hospitals. Among the other patients is a man, aged about 50, who was admitted some weeks ago with disease of the bladder, the nature of which was not well ascertained, but the leading symptom was the deposition of a quantity of muco-puriform matter in the urine. Injections with water, the application of moxa above the pubis, and other means, produced no amelioration, when, at my suggestion, the decoction of pareira brava was prescribed, and its exhibition was attended with great advantage, the urine becoming clearer, and almost entirely ceasing to deposit matter in the space of a few days.

There have lately been several cases of fracture in the hospital. Those of the leg are generally treated on a suspended frame, with moveable footboard, the limb being maintained in the same line as the body, on its posterior part, and the knee slightly flexed. No lateral splints are used, and the only bandages are those fixing the foot, and a narrow strip or two below the patella, which are quite insufficient to keep up a proper degree of counter-extension. In some simple fractures, the leg is placed between thick cushions of bran and splints extending its whole length, the foot being unsupported by a foot-board. In compound cases, simple dressings are generally used: bladders of ice are attached to the frame, and rest nearly their whole weight on the limb. The same means is had recourse to in injuries of the head in preference to cold lotions. A man, with fracture of the thigh, just below the trochanters, has been in the hospital about three weeks: when admitted, there existed considerable swelling about the hip, on which account no apparatus was applied, nor has any thing further been done beyond fixing the foot to the bottom of the bed, the limb being kept in the extended position, notwithstanding the swelling has subsided; there is consequently considerable shortening. I

am informed, however, that Dessault's long splint is generally applied in fracture of the thigh. In fracture of the bones of the fore-arm, splints appear to be seldom used: the arm is laid on a pillow in pronation; a strip of bandage passing round the upper forearm, is fixed to the edge of the pillow, and a similar strip passing round the wrist, is brought in a contrary direction, and fixed to the opposite edge of the pillow. Patients with this accident must therefore necessarily remain in bed until consolidation is effected. I am unable to say what are the results of this treatment.

EDWIN LEE.

Munich, April 3, 1836.

Abstracts of Cases from the Clinique of DR. RINGSEIS.

Intermittent fever.—A woman, æt. 30, admitted No. 3, on account of a quotidian attack of ague, which she had had twelve days previously. She was ordered Ant. Tart. gr. ¼, Potassæ Sulph. ʒii., four times a day during three days. This produced sweating, and copious stools, and on the 5th she had no recurrence of the attack. She was prescribed on the 6th, the mistura amara, which is composed of Ext. Taraxaci, Ext. Gentianæ, and Infus. Trifolii, with a small quantity of Tinct. Aloes; was allowed a meat diet, and having had no return of the paroxysm, was dismissed on the 12th.

Fever.—A woman, aged about 32, admitted 2d Nov., with fever, vomiting, and general derangement of the digestive apparatus: an emetic of tartarized antimony was prescribed, after which the most urgent symptoms ceased. A solution of supertartrate of potass was ordered as an ordinary drink. On the 5th, the mistura amara, with Tinct. Rhei, was prescribed, and on the 8th the patient was sufficiently recovered to be dismissed the hospital.

Fever and diarrhœa.—A middle-aged woman, admitted at the end of October, with fever. Colic pains all over the abdomen, which was tender on pressure, and diarrhœa. She was ordered to take during the first three days ʒii. Magn. Sulphat. four times a day. By this the symptoms were relieved. A mixture of Infus. et Tinct. Rhei was then prescribed, and on the 7th, as the bowels were confined, Ipecac. pulv. gr. ¼, Pulv. Rhei, gr. ii., every two hours. She became gradually better, but on the 10th had nausea, and vomited, for which an emetic of tartarized antimony was ordered; convalescent on the 12th.

Pleurisy.—A young man of plethoric habit, subject to catarrh, was admitted on the 10th Nov., with an attack of pleuritis. The pain in the side was very acute; the breathing laborious; headache; pulse 100, firm, contracted; skin hot; bowels relaxed. Sinapism to the painful part of the thorax: a mixture of Decoct. Althææ, Mucilage, Potassæ nitratis, and Ant. Tart. gr. ½, four times a day. By these means the urgent symptoms were relieved on the 11th, when a blister was applied, which was the only thing the patient complained of, two days after.

Pleuro-pneumonia.—A young man, who had previously laboured under symptoms of phthisis, was admitted on the 26th October, with pleuro-pneumonia on the left side, accompanied with high fever, headache, and diarrhœa. During a paroxysm of coughing, a vomica burst, and a quantity of matter was discharged; pectoriloquy was distinctly heard on the upper part of the left side of the thorax; bleeding to ten ounces; a mixture, composed of Potass Nitr. Ant. Tart. et Decoct. Altheææ. On the 29th, patient was much better; an emetic of tartarized antimony; sinapism to affected side of thorax. He went on improving till the 6th November, when he was allowed chicken and soup, and the bowels being constipated, was prescribed Tinct. Rhei, ʒii., in divided doses, every day. After the inflammatory symptoms had subsided, he had still cough, and muco-puriform expectoration.

Acute rheumatism.—A woman, æt. 32, admitted 1st Nov., having been ill five days. She had high fever, pain in all the limbs, some of the joints, especially the ankle, being swollen, and tender to the touch. A mixture, containing tartarized antimony and sulphate of potass, was prescribed; to this the nitrate of potass was subsequently added. On the 3d, pains but little alleviated; temperature of skin high; pulse quick, and rather full; breathing oppressed, and hurried; tongue coated. Auscultation furnished no unusual signs. Abstraction of ten ounces of blood from the arm, by which she felt greatly relieved. On the 4th, she was ordered half a grain of tartarized antimony in infusion of rhubarb, four times a day:

this produced five actions of the bowels, and the amelioration continued. On the 7th, there was but little febrile action; the pains were greatly alleviated; the breathing natural, and she slept better at night; but the tongue was still much loaded; same medicine continued; broth diet. She was ordered on the 9th, a mixture composed of ipecacuanha and infusum sambuci, which occasioned profuse sweating; the bowels had acted freely during the last few days; and she found herself much better. Increased action of the heart, oppression of breathing, heat of skin, came on on the 17th, when she was ordered half a grain of calomel, the same quantity of digitalis, and a quarter of a grain of opium, eight times within the four-and-twenty hours. The following day these symptoms had nearly disappeared: a solution of supertartrate of potass was then directed to be taken as an ordinary beverage: she experienced no further impediment to her recovery, which took place about the end of the month.

OF THE

NERVES SUPPLYING THE CAVERNOUS STRUCTURE OF THE PENIS,

AND THEIR CONNEXION WITH THE HYPOGASTRIC PLEXUS OF THE SYMPATHETIC.

By Professor Mueller, of Berlin*.

After I had discovered the fact that the arteriæ helicinæ—the branches of the arteria profunda penis producing erection — were different from those branches of the same vessel which served for nutrition (see Medical Gazette, January 9, 1836), I put to myself the question, whether the nerves of the penis were of the same or different properties, whether they belong to the system of nerves of animal life alone, or whether they also included organic fibres? Do those nerves upon which the sexual gratification depends differ in their nature from those which produce the accumulation of blood in the corpora cavernosa?

I have been so fortunate as to find, both in man and the horse, that the nerves of the cavernous bodies are made up both of branches proceeding from the organic as well as the animal system, whilst the nerves of animal life alone provide the nerves of sensation of the penis.

Since, by the discovery of the arteriæ helicinæ in the corpora cavernosa penis, the immediate source of erection is found to be in these bodies themselves, so will it be also proved, if such a connexion exists between the nervus sympathicus and the nervi cavernosi, that the sympathicus performs the principal part in the phenomenon of erection. I have observed that by far the greatest number of the nerves which penetrate the corpora cavernosa in man, derive as considerable fibres from the organic as from the animal nervous system, and that the same takes place throughout the nerves supplying at least the posterior half of the corpora cavernosa of the horse, whilst the anterior half is supplied only by nerves arising from the animal system, and entering anteriorly to the pubes—viz. the branches of the nerv. pudendus, given off whilst passing along the dorsum of the penis. Therefore the posterior nerves, which penetrate the corpora cavernosa behind, and enter the symphysis pubis, are composed as well of branches of the nervus sympathicus, proceeding from its plexus hypogastricus, as of the branches which come from the nervus pudendus communis.

Upon the side of the urinary bladder in the horse, and proceeding towards its neck, are many fine twigs of the plexus hypogastricus, which often join one another on their way, and separate again, forming a net-work. In this part of the plexus hypogastricus, upon the side of the middle and anterior part of the bladder, lie several small ganglions, separated from one another more or less, but often by a considerable space; they measure from one-half to two or three lines in diameter. From these ganglions twigs pass into the urinary bladder, by which means the grey nervous fibres destined for the corpora cavernosa pass from the hypogastric plexus thither, and they then unite again in the same reticulated manner. Before these nerves arrive at the posterior surface of the pubes, they unite in the neighbourhood of the neck

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* Revised for this journal by the learned Professor himself.

of the bladder with branches of the nervus pudendus. Through this anastomosis are formed many strong nerves —the *posterior cavernous nerves;* it is of these alone that I now treat.

Many of the nerves formed in this manner, of which, in the instance now before me, I reckon four large and two smaller, pass under and behind the symphysis pubis, and penetrate the corpora cavernosa, in part accompanying the arteria profunda penis, and partly in other places.

I remark particularly, that neither the posterior cavernous nerves, nor the anterior branches of the nervus dorsalis penis, form any swellings in their passage through the fibrous coat of the corpora cavernosa. In man, a much greater portion of the cavernous nerves are in connexion with the hypogastric plexus, and the number of twigs which come from the nervus dorsalis penis *alone*, is much smaller than in the horse. Hitherto, only the cavernous twigs of the nervus dorsalis have been known.

The demonstration of this communication in the horse is so easy, that the principal points may be clearly made out in a few weeks; but the preparation of those of the cavernous nerves, which anastomose with the hypogastric plexus in man, requires an extraordinary degree of patience, and a satisfactory demonstration of them, together with the hypogastric plexus, can only be perfected in the course of some months. The larger of these cavernous nerves can be found easily before and under the symphysis pubis, after these bones have been very carefully cut away; but the difficulty is, to demonstrate their connexion with the plexus hypogastricus.

In the summer of 1834 I was following out the twigs given to the penis by the nervus dorsalis, which I, as well as other anatomists, thought were the only nerves this organ received, and by this means I discovered, upon the root of the penis, a considerable number of grey nervous fibres, which passed forwards in a kind of lace-work between the vasa dorsalia from the right and left side, in order to unite themselves almost immediately to the branches of the nervi dorsales; some, however, pierced the root of the penis directly. As I prosecuted the dissection of these grey fibres backwards, I was quite astonished to find that the stems did not arise from the nervus dorsalis, but were continued in a diverging direction backwards to the sides of the commencement of the prostate gland, and underneath the venous plexus situated here, — one of these nerves is especially strong in this place. Before the prostate gland, these nerves are continued in a weak and still finer plexus of organic fibres, which partly lies concealed in the fleshy coats of the pars membranacea urethræ, and in part passes backwards between the prostate and the M. levator ani. This plexus stands also in connexion with branches of the nervus pudendus, within the fleshy coat of the membranous portion of the urethra; but the greatest number of the twigs of this plexus belong to the organic nervous system.

These, then, are continued (divided into many filaments) backwards between the side of the prostate and the levator ani; still hanging together in a plexus and passing upon the side of the bladder, where the fibres are very fine and soft, until they at length reach the plexus hypogastricus, with which they unite.

Close behind the prostate, and by the side of the cervical portion of the bladder, there are, in these plexuses, many ganglions, some longish and some more rounded (ganglia pudenda seu prostatico-vesicalia); to which, also, may be traced some fine filaments from the third or fourth sacral nerves. These ganglions cannot well be considered to belong to the hypogastric plexus, since they are widely separated, and are only connected with it by long and weak filaments. From these ganglions, twigs pass into the neck of the bladder and the prostate gland; but the greater number pass forwards to form the cavernous plexus. The preparation of the nerves in question will be conducted best in the following manner: — first, the cavernous nerves must be sought after upon the root of the penis, in that part where the greater number of them sink into the corpora cavernosa, that is, immediately before and under the symphysis pubis. Some grey nerves may be very soon found before the symphysis, and lying between the dorsal vein and arteries; these are to be followed backwards after the root of the penis has been separated from the pubes, which must then be sawed away —*this must be done very carefully.* When the stems of the cavernous nerves

are arrived at, they must be followed through the fibrous mass which envelops the venous plexus, underneath and behind the symphysis, until they reach the commencement of the prostate, where they begin to subdivide still finer, and form the plexus which has been already described. It will be advantageous to allow the preparation to macerate for some time in spirit, as, by this means, the fine nerves will be more easily distinguished from the surrounding parts. Now, before the most difficult part of the dissection, it will be better to commence the plexus hypogastricus, so that the plexus of the cavernous nerves may be prepared from behind forwards. The preparation of this union is very difficult, and requires the greatest patience; for although the connecting filaments between these two plexuses are numerous, they are very fine and weak.

The nervi cavernosi, consisting of many fine branches, and one large one, will then be found to spring from the plexus cavernosus, which is composed of the roots proceeding from the nervus pudendus on the one hand, and the plexus hypogastricus on the other, and which lies partly between the levator ani and the prostate, and partly in the fleshy coat of the membranous portion of the urethra, but is strongest on the anterior part of the prostate gland. All these stand in connexion with one another, and pass partly under the symphysis ossium pubis, partly immediately before it into the corpora cavernosa; sometimes accompanying the arteria profunda penis, but sometimes through peculiar passages in the fibrous envelope. Some twigs unite with the nervus dorsalis itself, others with the cavernous nerves of the opposite site, and others again with branches of the nervus dorsalis of the other side, and by these means a plexus is formed which accompanies the vasa dorsalia, and from this also twigs proceed, which, penetrating the fibrous coat, range in the corp. cavernosa. Some of the filaments of the plexus cavernosus on the other hand, uniting with twigs of the nervus dorsalis, pass over the corpora cavernosa, and descending into the furrows formed by the two roots of these bodies and the corp. cav. urethræ, are distributed into the last named body.

The nervi dorsales penis are, in distinction to all these nerves, quite white; they pass on the side of the arteriæ dorsalis forwards, and send many, for the most part fine, twigs into the corpora cavernosa. Their anastomosis in the middle line, through communicating branches, occurs generally in such a manner that filaments proceeding from the plexus cavernosus participate in forming it. By far the greatest number of the branches of the nervi dorsales are destined for the glans; a small number only is distributed to the integuments and prepuce. Upon *these* it is that the sensation of the parts depends.

PHOSPHATIC URINARY DEPOSITS, AND THEIR SOLVENT.

To the Editor of the Medical Gazette.

Sir,

In your last number some experiments are quoted, which are entirely opposed to the recent chemical observations contained in the second number of the Guy's Hospital Reports. As my name has been mentioned, I cannot refrain from expressing my firm conviction that your commentator, Mr. Brett, is entirely mistaken in all those points which bear reference to my communication.

The first experiment I shall notice is that by which it is attempted to shew, that muriate of ammonia can lose no portion of base by ebullition. Here your correspondent has been deceived by his experiment; and if he will use, as a test, litmus paper delicately tinged by a weak acid, he will discover his error. Turmeric paper is not sufficiently susceptible for these small operations.

Mr. Brett has stated, that boiling will not produce a precipitation of phosphates, when dissolved in a solution of muriate of ammonia, if any notable proportion of free muriatic acid be present. If Mr. B. will take the trouble to make the solution I have described in the Hospital Reports, he will soon be convinced that he is wrong, for litmus paper is quickly reddened by such a solution, previous to ebullition.

I am at a loss to imagine how Mr. Brett has deceived himself into a belief that the acidity of urine (affording a precipitate of phosphates by heat), is

never increased by boiling. Such an opinion must be held against most obvious facts, though it is certainly necessary to a belief in Mr. B.'s theory of carbonic acid, &c.

It has been somewhat particularly insisted upon by your correspondent, that the solvent action which muriate of ammonia exerts on the earthy phosphates has been long known to chemists: a reference to the Reports will be sufficient to shew that I pretended to no originality on this point, but expressly declared the contrary.

By inserting these few remarks in your next number, you will oblige

Your obedient servant,

GEORGE OWEN REES.

Guy's Hospital,
April 19, 1836.

MEDICAL GAZETTE.

Saturday, April 23, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

IMPORTANT CHANGES IN THE COLLEGE OF PHYSICIANS.

WE have this week to announce the most important step in medical reform which has been taken since the commencement of our editorial vocation. The College of Physicians have abrogated the by-law which required a degree in medicine as preliminary to obtaining admission among their Licentiates! Many have supposed that, in order to become a physician, the degree of M.D. was rendered necessary by some part of the statute under which the College hold their powers; but such is not the case, for when Henry the Eighth originally granted the charter, no restriction of the kind was imposed, and the only stipulation was, that the party licensed should be duly qualified. Of the requisite qualification the College was left to judge, but they, with marvellous self-denial, declined to retain in their own hands the rights thus conferred upon them, and imposed upon themselves voluntary fetters, by compelling all who wished to be admitted either as fellows or licentiates, to come provided with a medical degree. By what, if any, course of study, or by what, if any, extent of qualification, those degrees were to be acquired, the College had no means of regulating, and for a long period do not seem to have paid any attention to points apparently regarded as so unimportant. At length they enacted that two years (!) must have been spent in the study of physic ere the candidate should appear before them, at the end of which time, if the aspirant had purchased a certain piece of parchment at St. Andrew's or Erlangen, he might be admitted a Licentiate of the Royal College of Physicians of London.

It requires no argument to shew that this system was little better than a mockery — one in which a name was substituted for a reality, and a worthless diploma preferred to scientific acquirements. Such, however, is the force of habit, that it was long before the members of the College could be induced to view the question in its proper light; and we are not aware that any formal attempt was made till within the last few years to get rid of a by-law, the operation of which has been to limit the influence and usefulness of the College of Physicians in a very remarkable degree, and which if suffered to continue,—but for another year—would inevitably have swamped it altogether.

One of the great and just complaints against the medical establishments of this country has been, that no one could become a physician without leaving the metropolis to seek his professional education at Oxford or Cambridge, where his opportunities, *quoad*

medicine, were necessarily very inferior; or, if he were not of the Established Church, he had actually to leave England, to seek elsewhere the rank and qualifications refused to him at home. But we mistake: one alternative did remain;—it was open to him to practise a fraud by purchasing a diploma at any of those warehouses for the doctorate which have reflected so much disgrace upon science.

The evil above alluded to was one the existence of which we have often dwelt upon, and the means of remedying which we have repeatedly pointed out. The simplest and most straight-forward method of proceeding we shewed over and over again (see GAZETTE during the last three years *passim*) to be, that the College of Physicians should take the same ground relatively to *their* branch of the profession, which the College of Surgeons held with regard to surgeons, and the Worshipful Society at Blackfriars with regard to apothecaries—namely, that they themselves should regulate the education, and test the qualifications, which they deemed necessary for admission into their body; and that they should then confer upon the party the dignity of their order, by constituting him—a PHYSICIAN.

This, at length, they have done; they have shaken off the incubus which oppressed them; they have broken the fetters which rendered them subservient to every trumpery school in Europe, calling itself a University, and there is now a reasonable prospect of the Royal College of Physicians occupying that prominent place among the professional establishments of the country to which, by their rank and by their charter, not less than by their learning and by their influence, they are entitled, and from which, but for the bigotry of their predecessors, they never needed to have fallen.

We have learnt with satisfaction, that this great measure of reform passed through its legal ordeal of three successive meetings with increasing majorities, and that last Tuesday (April 19) completed the triumph—if we may be allowed to call it so—of liberality over prejudice. Some there are, it is true, who still violently oppose the change; some who cannot endure that education and knowledge should be substituted for matriculation and rolls of parchment. Should these gentlemen ever again obtain an ascendancy in the Councils of the College, and desire to preserve their order untainted, we would venture to suggest the expediency of contracting with some of the German Universities for an annual supply of diplomas; they would thus be spared the pain of seeing others than *doctors* become physicians, and might make a very pretty profit by charging a reasonable per centage for the commission.

As we have stated, the present change consists virtually in the substitution of a curriculum of education under the regulation of the College, in lieu of a diploma, over the pre-requisites of which they have no control. And this leads us to remark that our veracious contemporary* has, with his usual policy, suited his statements, not to the facts, but to the wishes of his party. He represents the object of the College of Physicians to be that of establishing an opposition to the Society of Apothecaries; and then adds, "licenses are henceforth to be sold at both places, if buyers can be found in Pall-Mall East; and the conditions to be complied with preliminary to an examination are made as slender as possible at the new shop, in the hope of catching customers." The answer to this allegation is—that it is utterly untrue: the standard of education required of those hereafter becoming physicians is much higher than it ever has been before, or than

* The *Lancet*, of course.

it is either for the College of Surgeons, or Society of Apothecaries, comprising not less than five years' professional study, including Midwifery and Surgery, as well as three years' Hospital attendance. But we shall publish the curriculum in full, both for the information of our readers, and as giving the lie direct to the servile journalist whose pen has been enlisted against this most liberal measure, and the motives of whose opposition we shall ere long expose.

"Nemo in Permissorum numerum admittatur, qui non prius Præsidentem et Censores certiores fecerit, per literas testimoniales à Comitiis Minoribus approbandas, sese Disciplinæ Medicæ studiis per quinquennium integrum incubuisse.

Disciplinam autem Medicam hæc precipuè studia complecti volumus; scilicet, *Anatomicen*, *Medicinam*, *theoreticam*, *practicam*, *et forensem*, *Chemiam*, *Materiam Medicam*, *Historiam Naturalem*, precipuè *Botanicen*, *Artem Obstetriciam*, et *Chirurgiæ Principia*.

Statuimus insuper et ordinamus, immo hoc summi esse censemus, ut nemo in Permissorum numerum admittatur, qui non priùs sese Medicorum praxi in Nosocomio aliquo idoneo triennium integrum consuevisse, per literas testimoniales Comitiis Minoribus prolatas, comprobaverit.

Nullum vero Nosocomium ad hoc idoneum judicamus quod pauciores quàm centum ægros in cubiculis continere soleat, vel quod non sibi adscitos habeat tàm Medicos quàm Chirurgos.

Si quis autem foris ad medicinam institutus in Permissorum numerum admitti petat, is prius in Comitiis Minoribus solito more comprobet sese non tantum iisdem studiis, quæ nostratibus jam ante injunximus, quinquennium apud suos impendisse, sed et Medicorum praxi intrà Britanniarum fines per annum integrum in Nosocomio aliquo idoneo invigilàsse."

So much for that lie!

But it is not because the circumstance of the members of the College of Physicians throwing open their doors may tend to direct some portion of the current from Blackfriars, that certain parties are so violent against the new arrangement—they apprehend it will interfere with the proposed Metropolitan University, and in this consists the secret of much of the opposition, both within and without the walls of the College. To us it is, and always has been, a matter of indifference by what means the evils in the profession were removed, so that they were *bonâ fide* made to cease. *We* have no personal interests to serve; *we* look for no appointment in the yet unborn University!

We have now for years advocated the simple expedient of the College of Physicians taking upon themselves the duty, as they undoubtedly have the power, of conferring the dignity of "physician" on those whom they find to be fit for that honour. But when, after passing the measure twice, they stultified themselves by throwing it out a year ago, at the third and last time of asking, we declared the decision to be not only suicidal as regarded their own interests, but, in our humble judgment, contrary to the terms of their charter. (See MED. GAZ., April 4, 1835). We turned from them in despair, not unmingled with contempt, and marvelled how so much learning could be associated with such a plentiful lack of worldly wisdom. Our only hope was then centered in the proposed Metropolitan University; and if the arrangements of this had been conducted on liberal and enlightened principles, it might have constituted a noble monument erected over the remains of ancient bigotry and prejudice. But so far as the details have become known, no such liberal views or independent principles are to be expected from it. The number of shareholders in the Joint-Stock Company of Gower Street, who have votes in parliament, is too great for the minister to despise, and — but it is enough to say that the accursed spirit

of jobbing has already tainted the arrangements. A set of names has been handed about as those of the gentlemen likely to constitute the medical examiners. The list may have been imperfect—some names may have been erroneously introduced—but we believe it was put forth as a feeler, and the effect must have convinced the Chancellor of the Exchequer, or rather his confidential adviser, that to give evidence agreeable to the chairman of a parliamentary committee is much easier than to command the confidence of a numerous and enlightened profession. Either from this conviction, or some other cause, the growth of the embryo University has been arrested; and as yet we know not whether the step taken by the College will prevent the birth, or whether it will but hurry on our parturient legislators, and cause the progeny to be

——————— "sent before its time
Into this breathing world, scarce half made up."

We venture, however, to suggest, that as the Minister cannot put a stop to the arrangement above described, nor prevent the emanation of "physicians" from the chartered body already in existence, his best and simplest course would be to come to some arrangement with them on liberal principles, so as to constitute the present College the medical branch of the new University. He would thus confer a great benefit on the profession, avoid the scandal which must attend the sudden appearance of two rival establishments for conferring the highest honours in physic, and though last, perhaps not least, might spare himself a world of vexation and trouble.

On the regulation referred to in the preceding article being passed by the College of Physicians, Dr. Elliotson desired that his name might be withdrawn from the list of the Council, a proceeding which, coupled with various other circumstances, we regard as abundantly significant. The Fellows, of whom there was a very full meeting, not only at once accepted the resignation, but prevented the possibility of its being retracted, by immediately electing Dr. Southey in his place.

MECHANICAL PHILOSOPHY AS APPLIED TO MEDICINE.

Abstract of Lecture Fourth: as delivered at the Aldersgate School,

By Dr. Birkbeck.

Dr. Birkbeck commenced by stating, that upon this globe, surrounding it on every side, and extending far above the most lofty mountains, elastic matter, exercising an important influence upon bodies immersed in it, is found. The existence of this elastic matter, in consequence of its being quite invisible—for it is not even dimly seen—was, during a long period, very imperfectly recognized. It was certainly noticed by the earliest philosophers—Hero, Ctesibius, and others; but it could not be said to be understood, until Toricelli pursuing the researches of his illustrious master, Galileo, in the year sixteen hundred and forty-three, discovered the weight and consequent pressure of the atmosphere. Subsequent experiments have rendered the investigation complete; and its mechanical history is now, it may be asserted, well understood. Yet, even at this day, when the actual weight of the air which rests upon the human body is stated, some degree of incredulity as to its extent prevails: we are scarcely prepared, without very cautious inquiry, to admit that we at all times sustain a load varying from thirteen tons to fourteen tons and a half. This, however, was shown to be the case by the following calculation. The weight of the air resting upon one square inch of surface, as would afterwards be proved, was taken at fifteen pounds; upon a square foot, it would therefore be 2160 pounds. The superficies of the adult human body being about fifteen square feet, the number of pounds multiplied by this quantity (2160×15) will give for the whole pressure thirty-two thousand four hundred pounds, or fourteen tons and a half, nearly. Adopting the same method of calculation, Professor Cotes determined that the weight of the entire atmosphere was equal to that of a globe of lead sixty miles in diameter.

That we are unconscious of this vast pressure, it was said, arises from our having been subject to it from the moment of

our birth, and from the perfect equality of the pressure. When we move quickly against the air, or when it is moved quickly against us, we become sufficiently aware of its material nature by its resistance. We witness its power, likewise, in those violent movements of seventy, eighty, or one hundred miles an hour, when, as a storm, or hurricane, it overturns, and sometimes destroys, large buildings or other obstructions to its progress. The effect of its weight may at once be demonstrated by disturbing the equality: thus a tall glass vessel, moving ordinarily with freedom, was rendered immoveable on the plate of the air-pump; the hand was firmly fixed on the top of an open receiver, and a membrane, not very strong, stretched tightly over an open vessel, was, by the same contrivance for depriving one surface of support, first made hollow, and then torn in pieces. Other experiments were exhibited, especially the Magdeburgh hemispheres, to establish the weight of the atmosphere; and afterwards its elasticity, the other important mechanical property, was similarly established. The height of an atmosphere of equal density, 27·818 feet, or five miles and a quarter, was then mentioned, and the indefinite extent of an investing fluid, decreasing in density as the elevation increases, with the actually measured gradations detailed, was demonstrated.

Dr. Birkbeck next proceeded to apply the principles of pneumatics to the explanation of several phenomena connected with animal systems, and especially with the human body. He again noticed the cranium, as affording a cavity impervious to the air, and accounted, by its pressure, for the head not being emptied of blood on decapitation; and for the fact stated by Dr. Kellie, as to the full quantity of blood appearing to occupy the vessels of the brain, when all the rest of the animal (which had been destroyed by bleeding) was quite bleached. Dr. Kellie, indeed, declares that more blood than natural remained there; which certainly could not have been the case. He then noticed the effect of the air-tight parietes of the chest, in regard to the contact of the pleura pulmonalis and pleura costalis, and of the elasticity of the lungs in resisting their expansion; as well as of the open elastic tube, the trachea, and its numerous ramifications. Thus the processes of inspiration and expiration were connected with the doctrines before established, both as regards the mechanical and pneumatic influences inducing the process of respiration. The power of the air to follow the minute ramifications of the air-tubes, in consequence of its weight and elasticity, was insisted upon; and the effect of the current augmented by resistance at the closed glottis, in expelling extraneous matter, such as mucus, pus, &c. was described. The purpose of respiration was shown to be far more important, than any simple result from the alternate introduction and expulsion of an unchangeable aeriform fluid; and the actual result was briefly detailed. That a surface of very great extent is provided for the accomplishment of the very important mutual action of atmospheric air and blood, within the lungs—an extent nearly thirty times that of the whole external surface—was rendered probable by the following calculation, derived from Monro *secundus*. The air-vesicles being only one-eightieth of an inch in diameter, there will be 512·000 of them in one cubic inch. Let the cells be supposed cubical; the sides will then amount, in a cubic inch, to 3·072·000: from this number deduct one-third for apertures of communication, and more than two millions of membranes will remain, constituting a space equal to three hundred and twelve square inches, or upwards of two square feet. But as the lungs in a full inspiration contain about two hundred and twenty cubical inches of air, the whole internal surface exposed to the air will be four hundred and forty feet (220×2), or nearly thirty times greater than the whole external surface, already stated to be about fifteen square feet.

Notice was next taken of the effect of atmospheric pressure in preserving the head of the thigh-bone in contact with the surface upon which it rolls; and of the difficulty which has sometimes been experienced in separating them: resembling the difficulty felt by glass-grinders and opticians, in regard to large lenses and the tools in which they are formed The assistance derived by the lacerta gecko and the leech, in progression, as well as by the house-fly, the dytiscus marginalis, and other insects provided with an extensive and beautiful pneumatic apparatus, was spoken of. The aid obtained from such pressure in fixing the remora, the sæpia, and the univalves, was also noticed; as well as the assistance derived by all the insects termed suctores, from the same source. Other applications of the same principle, equally interesting, if time had been allowed, would likewise have been investigated.

And now, said Dr. Birkbeck, I have done. I regret exceedingly that I have not had an opportunity to do more justice to the subject, and to my desire to assist, by the delivery of a few scientific lectures, my friends, the able and intelligent teachers of this rapidly advancing establishment: my health and strength, however, have not allowed me to do more for them and for

you; but I hope, that, on some future occasion, I may enter more minutely into this important inquiry. Enough, I trust, has been accomplished, to establish the importance of mechanical philosophy, when conjoined with human physiology, and to show that the splendid and mysterious effects resulting from the agency of the living principle, suffer no disparagement from an association with the more humble and intelligible inductions from material phenomena. I have placed you, I am aware, upon the mere threshold of the science to which I have directed your attention; and I therefore entreat you to consider yourselves hereafter, in regard to this department, and, indeed, in respect to the departments which have here been extensively and profoundly investigated, as entering upon the most valuable and important part of your studies. You will now refer, without your guides, to the great book of nature; in which you will find an exhaustible supply of objects and phenomena, the most varied, beautiful, and magnificent. It will prove an occupation always refreshing and delightful: and as you thus proceed in acquiring fresh accessions of real knowledge, you will find that it may be said of knowledge, as it was long ago beautifully and emphatically said of virtue, that "all her ways are ways of pleasantness, and all her paths are peace."

THE MEDICO-CHIRURGICAL REVIEW AND MR. ASTON KEY.

Letter from Mr. H. J. Johnson.

To the Editor of the Medical Gazette.

I have read, sir, with much surprise, a letter from Mr. Aston Key, in the last number of the Medical Gazette. Its title is "On the Agency of Iodine in Ulceration." It might, with more propriety, have been designated "Some Conjectures on the Agency of Iodine in Ulceration, and Elaborate Abuse of the Messrs. Johnson." I say, sir, of the Messrs. Johnson, for such is the somewhat slang designation applied no less than thirteen times to my father and myself. But although the "Messrs. Johnson" are thus ostentatiously insulted, the personalities of Mr. Key are substantially levelled at me.

The letter of this gentleman is of such a character that his best friends must deplore the passion that appears to have given it birth. I will not stoop to imitate its tone, nor to retort on Mr. Key the injurious epithets and unwarrantable imputation which he so lavishly bestows on me. I am, as he asserts, an attaché to a school in the "far West;" and I hope that, as a lecturer, I shall maintain the character of which the pupils of that school are proud,—of not forgetting the manners of a gentleman. How far and how well Mr. Key represents the feelings and the bearing of a school in the "far" East, must be left to others to determine. He taxes me with volubility: I yield the palm to him in that. His proximity to a celebrated market may possibly account for its peculiar characteristics.

The cause of Mr. Key's complaints must be sought in two critiques on two papers of that gentleman. The papers in question were published in the Medico-Chirurgical Transactions, and the critiques appeared in two separate numbers of the Medico-Chirurgical Review, of which Dr. Johnson and myself are editors. I cannot admit that the conductors of a journal should be saddled with the authorship of every article and of every obnoxious expression contained in it: but, in the present instance, I am willing to take my full share of responsibility for the criticisms to which I have alluded, and to incur whatever censure may fairly attach to the reviewer.

Mr. Key has obscured the issue between us by a thick stratum of abuse. When that is shovelled off, the question itself is simply this:—

Mr. Key's papers in the Medico-Chirurgical Transactions were essentially directed to two objects—to prove that there is a wider distinction than is supposed between ulceration and absorption, and to revive the antiquated notion that suppuration is a sort of resolution of the tissues. These were the principal objects of his papers; and, to establish these, he industriously laboured with the usual machinery of facts, and reasonings, and illustrations. The critiques were, as I stated, two in number; one long, and both of an elaborate, or, at all events, of a circumstantial description. If they had been characterized by disingenuousness or partiality—if decency or justice had been violated—the obvious and the proper mode of exposing the reviewer would be that of bringing forward the specific instances, and proving, by the laws of evidence and reason, the offences charged against him. By their award I should willingly abide; and I am perfectly content to refer those who may feel an interest in the present controversy, to Mr. Key's papers and to the criticisms on them, and to beg the reader to form a dispassionate judgment for himself.

But Mr. Key has not proceeded in this rational and customary manner. To establish the injustice of two long critiques, on two involved hypotheses, he selects an

incidental illustration of his notions—itself a matter of opinion; and, opposing his *ipse dixit* to the reviewer's, he arrogates the exclusive property of observation, experience, knowledge, and truth, and pelts me with a handful of foul names.

The matter of opinion is the agency of iodine. Mr. Key asserts that it is a powerful tonic. "Iodine," he says, "when used properly, is a powerful stimulant and tonic; it excites the pulse, and increases its volume; it stimulates the stomach, increases the appetite, and fattens the patient; it gives tone to the extreme vessels and nerves of an ulcer, and prevents the inflamed texture being destroyed by ulceration."

Entertaining these opinions, now, for the first time, explicitly avowed, Mr. Key had previously remarked, in his last paper, "It is difficult to explain or to reconcile the action of some remedies, with the supposition of absorption being concerned in ulceration. One of the most powerful remedies that we possess, and that exerts a remarkable control over the ulcerative process, is iodine. The most active phagedænic ulcers, that threaten the destruction of parts, are often found to yield, in a surprising manner, to the influence of this medicine, and to put on a healthy granulating appearance: and yet iodine is thought to act powerfully in increasing the action of the absorbents; tumors of considerable size often yielding to its action, and being absorbed. How is it that, in the healing of an ulcer, it checks and puts a stop to the absorbing process, and, in the case of a tumor, quickens the action of the absorbents and gets rid of the mass? Here are two actions of a remedy opposed to each other, and inexplicable, so long as ulceration is regarded in the light of absorption."

Mr. Key, in the passage I have quoted last, [the passage contained in his original paper], cited the action of iodine as confirmatory of his hypothesis that ulceration and absorption differ. The argument stands thus:—Iodine is thought to promote absorption; but iodine checks ulceration; therefore, ulceration is not absorption. You must observe, sir, that the whole force of the argument rests on iodine producing absorption. If iodine be really a stimulant and tonic, if it actually fattens those who take it, it does not support the theory of Mr. Key, because stimulants, and tonics, and fattening things, are well known to tend towards checking ulceration and absorption. Mr. Key said nothing of the tonic qualities of iodine in his paper. He is now on the horns of this dilemma;—either his argument drawn from the action of iodine was inapplicable; or, believing the general notion of that action to be erroneous, he still made use of it to support his case. I allude to this logical inconsistency *en passant*. It does not bear immediately on the present issue, but it forms a very apposite example of the general style of reasoning of Mr. Key.

The question now between us with respect to iodine arises from a criticism on the passage I have quoted. Let me again introduce it to your notice.

"If Mr. Key could prove that iodine was a great promoter of absorption, and at the same time one of the most efficient agents in checking rapid ulcerative action, we should admit that there was plausibility in this argument. But we differ, *toto cœlo*, from Mr. Key, in his very premises. We deny that iodine is an efficient remedy in cases of phagedænic ulceration. Nay, we will go farther, and affirm, as a general fact, that iodine is one of the very worst remedies that could be administered in phagedæna. Our readers must observe, that phagedænic ulceration may occur in circumstances diametrically opposite,—in a state of system requiring depletion, and in a state of depression and extreme irritability. The former, so far as we have seen, is the exception; the latter the rule. It is possible that in the former, iodine may now and then be beneficial: we are certain that in the latter, opium, the volatile alkali, stimuli, are the remedies to which the surgeon must trust. These are the remedies that build up, rather than pull down; and as reason suggests their use, experience justifies it. On this point we can speak with the positiveness of careful and extensive observation; and here, on the premises of the argument, we are opposed to our author."

I admit that these opinions were uttered in too free, and too *brusque* a manner. I regret that in this instance (I hope the only one) I have placed myself on a level with Mr. Key, and I make him a present of all the advantage he may reasonably claim from this candid admission.

I must own that, for a stimulant and tonic, I have seen iodine produce rather curious consequences*. It has often been my fortune to see people *not* fatten on it. On the contrary, they have frequently grown sallow and emaciated, and presented those symptoms of a nervous character, which rendered it necessary to

* I have presumed throughout that Mr. Key has been speaking of iodine, and not of the hydriodate of potass. The action of the two is in some respects dissimilar. Were a man to affirm that he found potass an useful purgative, and afterwards explain that he alluded to the sulphate of potassa, we should be apt to think that the current of his ideas was disturbed and muddy. Of course, then, the remarks of Mr. Key apply to the iodine itself.

withdraw the medicine. If, as a tonic, it occasions absorption of a bronchocele, or of those specific morbid growths on which it occasionally exerts such remarkable powers, I can only say, that it differs materially from other tonics and other stimulants. If, as a tonic, Mr. Key usually prescribes it, his patients may exclaim to him, as Cromwell did to Sir Harry Vane—"Oh, Sir Harry Vane, Sir Harry Vane! the Lord deliver me from Sir Harry Vane!"

The question of the virtues and the agency of iodine is one which no argument can settle. It is essentially a question of individual opinion—of opinion founded, indeed, upon facts, but not the less of opinion. If the sentiments, on this subject, of any twelve of the most experienced surgeons and physicians of London were collected at this moment, and compared, I am sure they would be found to differ widely. There is scarcely a matter connected with the administration of remedies, on which the discrepancies of practical men are so striking. Is it decent, then, in Mr. Key, in the midst of this uncertainty, to set up his opinions as the standard of right—his hospital practice as the bar for arraigning the practice and the information of others? He erects Mr. Cock as an arbiter. With the utmost deference both for Mr. Cock and Mr. Key, I cannot implicitly bow to their authority. I may be wrong in my opinion that iodine is not a valuable remedy for phagedæna, attended with depression and extreme irritability; I *was* wrong in expressing that opinion so positively; but, right or wrong, Mr. Key is not justified in addressing to me the language that he does, and in stigmatising an opponent on a dubious question as an ignoramus and a fool. If this be the scientific lesson that he reads his class, assuredly it is not what I teach mine: a truculent logic, more debasing to its advocates than injurious to those against whom it is pointed.

But the controversy on iodine forms but the half of Mr. Key's letter; the other half is devoted to unmitigated abuse of me. His accusations are of rather an extraordinary character.

According to this gentleman I am an inexperienced youth, too infantile to have done with nursery books, or to have shaken off the horror of nursery tales. Thirty years usually do more than that; and I possess sufficient vanity to suppose myself not far behind the level of my age. Youth is a fault that time will remedy; but it is not so certain that years will exert the same salutary influence on the intemperance of Mr. Key. There is a proverb on this subject which I will not quote. The passions of youth are extenuated by its generosity; but violence in age is a ludicrous as well as a painful spectacle. It is like flat champagne; the aroma and the sparkle have departed, whilst the pinching and injurious qualities remain.

The second accusation is as judicious and conclusive as the first. I present it in the words of Mr. Key:—

"Where this young gentleman has passed his time since the period of his pupillage is not easy to divine; certainly not in a metropolitan hospital, for there can scarcely be one that does not, like Guy's, afford abundant evidence to give a direct negative to his assertion; he is, indeed, far behind the practical knowledge of his own times. It may be that he passes his time in the recess of his closet, learning the art, or the mystery, of reviewing. Practical surgery is one thing, reviewing another. Let me assure him that the latter is a bad school for learning his profession practically, or even for acquiring liberality of feeling. I speak not from personal experience in reviewing, as I never wrote a review; but I judge, as in the present instance, from the fruits of those who do."

One thing is quite certain. I have not passed my time in a school where vituperation is held to be argument. What my professional knowledge may be, it does not become me to say. I am sure that Mr. Key is a very inadequate judge of it; and I hope that his inference as to my ignorance is as erroneous as his supposition respecting my pursuits. I can well believe that he never did write a review, for I am conscious that reviewing has *not* produced in me that peculiar species of liberality of feeling so evident in him.

If the preceding accusations are extraordinary, that which follows is more so. Mr. Key denounces me as a thick-and-thin panegyrist of Sir Benjamin Brodie, and a systematic literary ruffian. This serious charge is diffused through six columns of close letter-press, and almost every paragraph ends, like the ballad of "Down derry down," with a chorus of the name of Sir Benjamin Brodie. I scarcely know whether to laugh, or to feel indignant, at the passage I shall quote—to laugh at its absurdity, or to feel indignant at its groundless virulence.

"You must know," says Mr. Key, in the words of some real or fictitious friend, "that one of the Messrs. Johnson is a candidate in future for the honours of the profession, and is an *attaché* in some shape to a school lately established in the far West. To both these objects he makes his review subservient, and for both he wishes to have the assistance and support of Sir Benjamin Brodie. You will observe that in all his reviews he is careful,

most careful, to drop nothing from his pen at all likely to annoy that eminent surgeon, but seizes every opportunity of applauding, *un peu fort*, it may be, whatever comes from his pen or from his lips, and of victimizing all who are guilty of *lèse majesté*. You are guilty, and will make a good subject to offer up at his shrine; depend upon it you will be broken upon the wheel,—quietly enough, perhaps, for they will take care to stifle your cries; but your fate is decided. Your *disjecta membra* will then be offered up as a sacrifice; or perhaps you will be smothered *en masse* (doubtless prophetic of the screw press), and afterwards offered as a holocaust on the reviewer's altar of adulation."

Upon my honour, sir, I am almost inclined to feel horror-struck at discovering my own bloody-mindedness. I am much in the situation of some well-meaning man, who, having never to his knowledge committed any particular atrocity, is told by some eminent professor of phrenology that he possesses an enormous bump of destructiveness, and that he *must* be a murderer; or, rather, I am like the *bourgeois gentilhomme*, who had talked prose all his life, and never knew it.

It is true that I was educated at St. George's Hospital—it is true that I am a lecturer on anatomy in Kinnerton-Street—it is true that I enjoyed, what I am not ashamed nor afraid to avow as a very great advantage, the opportunity of long observing the practice, and hearing the opinions, of Sir Benjamin Brodie; but it is not true that I prostitute the journal I conduct to the vile purposes of private intrigue, or of personal aggrandizement; it is not true that I devote myself to the systematic adulation of Sir Benjamin Brodie, or to the immolation of all who may become his scientific opponents. To this unwarrantable imputation I can give but one reply—a direct denial. An imputation monstrous and improbable in itself—advanced without even the semblance of proof—urged in passion—and born in disappointment.

Ill-natured persons have not failed to remark, that the charge of profiting by patronage proceeds with a bad grace from Mr. Key. He has himself smarted under the unpleasant and unjust aspersion of participating in the benefits of nepotism—a term applied, I understand, on the occasion. The consciousness of unmerited obloquy should have made him pause before he heaped it on another's head.

Mr. Key commits a material error when he states that I sneered at the salutary efforts of nature. He does not suspect, what your readers may, that the sneer, if such there was, might possibly not be directed at the doctrine, but at an improper and absurd application of it. The theory of the Vis Medicatrix Naturæ, when pushed to the extreme, defeats its own object; and nature must blush to find herself sunk to a cobbling mechanic, patching up one hole, and making a worse.

I quite coincide with Mr. Key in his truism, that "no human being can injure or debase the mind of another; this lies only in his own power; by himself only can man be thus injured." This reflection renders me perfectly contented under the calumnious imputations which he pours upon me; and I cannot but feel how singularly his practice tallies with his text. I know that he cannot injure me, but I see that he materially degrades himself.

I would fain believe, indeed I do, that Mr. Key's surgical talents are superior to his wit. If brevity be, as is said, its soul, and intelligibility its head, the acephalous monster which proceeds from Mr. Key possesses no sort of animation. His statements and his jokes upon the sieve and screw, remind me, in some measure, of what Sheridan said of the first Lord Dundas. "His Lordship possesses, in an eminent degree, the gifts of invention and memory, but he employs those qualities as no one else would do; for when he states his facts, we admire the force of his invention, and when he utters his jokes, the powers of his memory."

Mr. Key concludes by observing, that it is necessary to make no apology to the Messrs. Johnson. Mr. Key must pardon me. I will not say that he betrays an imperfect acquaintance with the customs of society, but I will say, that when sordid and disgraceful motives have been attributed by one gentleman to another, an apology is usually considered due. From Mr. Key, however, I require none. With feelings of personal indifference, I began this letter; and with feelings of indifference I end it. I hope its moderation may contrast with the violence of Mr. Key's.

It would not be difficult to retort on him severely; for looseness of reasoning, and blindness of passion, expose him on every side to sharp recrimination. But the unenviable situation in which he has placed himself, reads me the best lesson of forbearance. The Spartans, to disgust their children with drunkenness, exhibited a Helot, drunk.

As this is the first time I ever had occasion to meet Mr. Key in public, it will not be my fault if it is not the last. No consideration shall induce me to re-engage in the present controversy.

I remain, sir,

Your obedient servant,

HENRY JAMES JOHNSON.

8, Suffolk-place, April 19, 1836.

INJUSTICE AND ABSURDITY

OF

THE MEDICAL PROVISIONS OF THE PRESENT POOR-LAW.

To the Editor of the Medical Gazette.

Sir,

I take the liberty of forwarding the inclosed for insertion in your widely-circulated journal, and have merely to observe, for the present, that, at a meeting of medical gentlemen in our neighbourhood (upon the occasion of an interview with the Deputy Commissioner appointed to settle the medical portion of the new Poor Bill), Mr. Power did not even attempt a reply to the arguments adduced by myself against it; at the same time due credit must be given to that gentleman for his urbanity and politeness in hearing our opinions. The inclosed was written in haste, in the few minutes that I could spare from professional duties.

I am, sir,
Your most obedient servant,
D. R. M'Nab, M.R.C.S.

Epping, April 18, 1836.

To Alfred Power, Esq., Deputy Commissioner of the Poor-Law, and to the Guardians of the Essex Unions.

Gentlemen,

The scheme for medical assistance and relief, which you have suggested in all the unions of this county, and, by the conduct of some nameless practitioners, have been enabled partially to adopt in this, claims the dispassionate attention and consideration of all the established practitioners both of this neighbourhood, and of the kingdom at large.

That the scheme is impracticable and unjust, I will endeavour respectfully to shew to you; and that it is absurd and odious to all respectable and conscientious men, is almost too self-evident to need either proof or illustration: and first, with regard to its impracticability.

You may contract for meat, for bread, for flour, or clothing, at per head, and the test of the senses will afford a sufficient guarantee and security against imposition; but to contract, in like manner, for a medical man's industry, judgment, and experience, and the application of those talents to any given purpose of utility, is visionary and absurd: and, independent of the mysterious dose which a pauper or a *free* patient may swallow under the various forms of pill or potion, I contend that both the one and the other are equally out of your power either to estimate or control. And let the amount of your assessment for the purpose of remuneration be what it may upon the independent labourer, (as he is delusively called in schedule B) the principle is equally inapplicable to him, as it is unjust to the pauper in schedule A; and to the former still more so, as it obliges him, in many instances, to employ some district parish-surgeon, in whom, perhaps, he has no confidence, and against whom he has no veto during the period of the contract. I will now add a few words to illustrate the injustice and absurdity of the measure, for both are very nearly allied. First,

It is unjust to lay a poll-tax of 2*s*. or 2*s*. 6*d*. per head for adults, and 6*d*. for children, upon any class of the community, under the frivolous dread of "a doctor's bill:" and it is still more so, when the pretext is mainly intended to throw the burthen from the shoulders of the parish on the backs of the lowest, and, in my opinion, the most oppressed portion of this neighbourhood, viz. the agricultural peasant—and this, too, under the fictitious plea of rendering him independent of the parish. This, I venture to assert, is the true state of the case; and this, moreover, is the view which the generality of the peasantry will take of it, when they come to reflect, notwithstanding the urgent expostulations of sundry Guardians, who, under your pupilage, have taken a different view of the question.

Where, I would ask, is the *man* or *family* in this county, that has been pauperized either by the enormity or exaction of a "doctor's bill?" for I apprehend, by the first report of the Poor-law Commissioners, that this is the main, and almost only argument, in favour of the adoption of the measure. Secondly,

It is unjust towards the medical practitioner who engages for the attendance, in schedule A, on destitute, infirm, and dependent paupers, to oblige him to attend on similar pauper terms, and under a similar base contract, a certain number of those you wish to style independent labourers, from whose united subscriptions he may provide an adequate remuneration for his public services; to force him thus to rob his private connexion to ease the parochial burthens, which he must do, if the neighbourhood abounds in labourers, as in many *they* form two-thirds, in some three-fourths of the whole population, viz. at Matching, Magdalen Laver, Nettswell, Parndon, &c.; at any rate, it is unjust to place him in a situation, by the veto you enforce, of rendering himself obnoxious to many, and, in the end, to bring his professional conduct into general suspicion and universal disapprobation.

As farmers are much interested in this question, and form a great proportion of the Board of Guardians, I will, in legal phraseology, endeavour to illustrate the whole, by an "hypothetical case in point." A farmer takes a large farm, with the addition of many acres of land of inferior quality: having cultivated this for many years to the best of his power, and to the satisfaction of the landlord, or lord of the manor, he is suddenly told by the all *powerful* man, that he shall expect him hereafter to continue the cultivation of the common land with equal assiduity and attention; but, in lieu of the produce, he shall allow him a certain sum per acre, more or less, according to the number of acres. I will now ask the following questions:—

1. What zeal or industry should you be likely to exercise on that land, on such terms?
2. Would you consider the proposal just?
3. Would you take any pains or trouble to cultivate it at all, for so unjust a man?

In this predicament will the practitioner be placed, who undertakes the medical superintendence of parish clubs, and paupers.

I have now, sir, endeavoured, however imperfectly, to point out the gross injustice to the poor man, and the flagrant imposition to the medical man: let me next draw your attention to its egregious absurdity.

I can scarcely conceive any scheme better calculated to attract the attention and cupidity of the unprincipled quack (and here let me be clearly understood, I do not refer to the advertising mountebank, but to the still more mischievous, inasmuch as it is concealed, quackery which abounds in the medical, as well as in all other professions); and whether the lives of your schedule A, and schedule B, are intrusted to the *merciful* consideration of "bread pills," or "mocked by a julep," under a puerile system of the "medicine expectante," or are exposed to the merciless ravages of "incipient evacuations," or of "drastic poisons in exaggerated doses," the result will be the same—viz. to make your proposed plan *pay* the unprincipled candidate; and I can affirm, without contradiction, that to him only *can* such a plan be made an adequate remuneration. You can, I think, only escape one of these extremes by the adoption, in your next advertisement for candidates, of the homœopathic system of infinitessimal doses, the whole of whose materia medica may be comprehended in the limits of a snuff-box—men who have not only simplified remedies, but diseases also, by referring them to one common origin.

I shall for the present, gentlemen, close these observations, with the assurance that I do not accuse you of *intentional* injustice, either to the poor man or medical practitioner; but that in your zeal for the execution of your official duties, in carrying forward the principle of the new poor-law, you have stumbled upon a practical error, in its very nature contrary to the principle of independence, in that truly useful and beneficial legislative enactment. I therefore implore you to pause ere you proceed too far with a measure which will, I fear, tend much to destroy every good feeling of humanity which has heretofore distinguished the profession to a very extensive degree, and to weaken the ties of benevolence which have existed between the medical man and the lower classes of the community, by a compulsory contract, which, in the end, will prove hateful and obnoxious to all, and troublesome even to yourselves. I therefore, most respectfully, for the present, take my leave, and have the honour of remaining, gentlemen,

Yours, &c.
D. R. M'Nab, M.R.C.S.

Epping, Essex,
April 18, 1836.

EXTRACTS
FROM
DUTCH AND GERMAN JOURNALS.

HÆMATURIA.

In the *Pract. Tijdschrift*, 1835 (July—August), Dr. Egeling, of Barlem, relates the result of two cases of hæmaturia, in which he has found the balsam of copaiba to be of essential service.

The first was that of a man who had suffered under hæmaturia for some time, and in which the ordinary remedies failed, but which quickly disappeared under the exhibition of the bals. copaibæ.

The second is that of a woman who had suffered under catarrhus vesicæ for many years. She could not retain her urine for any length of time, and in every discharge of it a copious viscid and purulent mucus was precipitated to the bottom of the vessel.

The uva ursi was first tried, and appeared to do good, as the discharge was somewhat lessened in quantity.

Suddenly, however, and without any explicable cause, there was a discharge of blood with the urine, which probably came from the bladder, although it may possibly have originated in the kidneys. The muco-purulent discharge returned now as violently as ever; every day there was a thick deposit of this excretion, covered

with a layer of blood. All usual remedies were applied during the space of some weeks, but without effect; but now the balsam of copaiba, administered at first in one-drachm doses, produced a perceptible improvement in the colour of the urine, and a lessening of the discharge of mucus and blood; and after the dose had been increased to two drachms, there was no trace of blood, and the other excretions were reduced to a small quantity.

Although the observations could not be continued farther, there has been at least no repetition of the sanguineous discharge.

NUX VOMICA IN PROLAPSUS ANI.

Dr. Schwarz, of Hesse, in Brunswick, recommends nux vomica as a specific in this disease. He has used it as such, with the best effects, during ten years, during which time he has administered it both to children and adults, and has found it efficacious in cases which had not only become severe from their duration, but also through neglect.

One case quoted is the following:—

Four years since, a workman, aged 18 years, had been suffering during the previous three years from prolapsus ani, in consequence of a severe diarrhœa. The rectum was at that time so relaxed, that it descended with every effort, and could only with trouble be held back so long, till another effort caused its reprotrusion. After the patient had taken the nux vomica for fourteen days, accompanied with proper diet, the rectum descended less often.

The medicine was then given in combination with some grains of ext. rhatanæ, and after it had been persevered in for some weeks, the prolapsus was removed.

In the case of little children, Dr. S. usually employs a solution of the extract in distilled water, in the proportion of 1 to 2 grains in ℥ij. of water; and of this solution 6 to 10 drops are administered every four hours. Usually the prolapsus is removed by the following day.

In the case of older children, Dr. S. recommends an appropriate diet to be ordered. The dose may also be increased to fifteen drops; and to ensure the perfect removal of the disease, the doses should be repeated twice a-day for a week after the rectum has ceased to descend. In the case of suckling infants, two or three drops is the dose. When there is any unusual degree of obstinacy, Dr. S. (as in the case above related) combines the nux vomica with extr. rhatanæ.

HUMAN RUMINATION.

Dr. Zeppenfeld, of Bockum, relates his having observed distinct rumination in the case of a man, now 60 years old, and his son, aged 28. They have both been addicted to it from their childhood.

The food is thrown up three or four hours after a meal in distinct balls, with uninterrupted and easy impulse, into the mouth; at first it has no unpleasant taste, but shortly before the cessation of the process it becomes rather sour. Both persons are in the enjoyment of good health, and the remainder of the family is free from this ox-like peculiarity.

SALIVATION IN PREGNANCY.

In the *Wochenscrift für die gessammte Heilkunde; Berlin:* for 18th Sept. 1835, are recorded two very decided instances of irritation in the salivary glands depending upon pregnancy. The first is by Dr. Hamm, in which case the woman had suffered a repetition of this unpleasant condition throughout ten pregnancies; it was so severe as to cause great exhaustion, and at times faintings. The teeth and gums presented the usual appearances of a person under the effect of mercury.

The other case was observed by Professor Casper, who, as well as other physicians, tried all suggested means to lessen it, but without effect. In this instance it existed through five periods of pregnancy, and was so constant and early in its occurrence, that the patient considered it as the first actual proof of her condition; and as regularly as it occurred, so regularly did it cease immediately after delivery.

FISTULA OF THE ALIMENTARY CANAL.

In the same journal for the 5th February, 1836, are related two cases of fistula of the alimentary canal, healed by the actual cautery, from contributions from his case-book, by Dr. Fingerhuth, of Esch.

Case I.—A robust labourer, aged 24 years, fell backwards while he was carrying a heavy stone in both hands. By this means he suffered a severe contusion in the right lateral region of the abdomen, from seven to eight inches in circumference. Immediately followed nausea, repeated vomiting of a bitter fluid, and pain in the injured part, which extended as far as the right shoulder. Dryness of the mouth and urgent thirst excited the patient to drink, which he had no sooner done than the fluid was again thrown off. Costiveness lasted for many days, and the urine passed was small in quantity and at first seldom ejected.

Cold fomentations and clysters had, indeed, lessened these symptoms, but were nevertheless insufficient to prevent the formation of several abscesses. After a lapse of six weeks, one of these opened spontaneously, and discharged a quantity of bloody pus, mixed with feculent matter.

Hitherto the patient had been without medical advice, during seven weeks in summer; but being alarmed by the existing state of things, he requested my attendance.

I found him much emaciated; the abdomen (especially on the right side) distended, tense, and having a fistula situated on the same side, of about four to five lines in diameter, somewhat lower than the navel, and about two inches distant from it: from it were discharged an ichorous pus and fluid fæces. Above this fistula, and corresponding with the lower and anterior margin of the liver, was a swelling, somewhat pointed and redder, which evidently fluctuated. An incision into this liberated a tolerable quantity of pus, resembling wine-dregs; upon this the parietes collapsed, and the patient was freed from the violent pain he had before experienced, and was enabled to lie on his right side much better than heretofore. Under the continuance of warm emollient cataplasms, a continual internal treatment, and the exhibition of a mild nourishing diet, the abscess of the liver soon healed, but the fistula opening into the intestine continued undiminished, and still allowed the fæces to pass freely through it. This unpleasant state of things was somewhat diminished by the application of a bandage and compress; but the shifting of the bandage, and the irritation caused by the discharged fluid, with which the pad was saturated, acting on the surrounding parts, added to the loathsomeness of such a consideration, rendered it the increasing wish of the patient that something should be done to rid him of his lasting and annoying misfortune.

The first plan which suggested itself, was to destroy the mucous surface of the fistula, and endeavour to change it into a granulating border: to this end I tried many applications, but without success. Amongst them, I found the tinct. cantharid. applied on pads of charpie, the most effectual. However, even these granulations were weak and pale, and they remained so, although I ordered warm stimulating cataplasms, in order to promote its effect. Stimulating unguents, which I ordered during a fortnight, with the same object, had as little effect. Although the fistula was a little lessened by these weak granulations, it still showed no inclination to close. I now determined to apply the actual cautery, which I did on the following day, in this manner:—A cylindrical iron, exactly corresponding with the diameter of the fistula, was heated to a little below the red heat, and then introduced within the fistula; by which means the whole of the lining membrane was cauterised; during this, the patient complained of severe pain. Abundant granulations soon covered the cauterised part, which lessened itself rapidly, and the fistula was finally entirely healed, after having been touched once more with an iron not larger than a crow-quill.

Case II.—A strong lusty ploughman received, in the summer of 1834, a kick from a horse, in the abdomen, on the right side, about two inches above Poupart's ligament, and equally distant from the anterior sup. spinous process of the ilium and the linea alba.

Two days after the accident the patient was placed under my care. I found him suffering under a decided inflammation of the alimentary canal, with the usual characteristics—countenance pale, tongue red and dry, insatiable thirst, after every attempt to quench it; followed by a vomiting of a greenish, bitter fluid, great uneasiness, the abdomen tumid and painful, but still the place where the injury had been received was only marked by two small ecchymoses. A decided antiphlogistic treatment lessened all the most urgent symptoms, but could not prevent the formation of pus. Twenty days later, two abscesses opened themselves at the distance of an inch from each other, and discharged purulent matter and fæces; this proved, upon examination, to be in connexion with the small intestine. The treatment pursued in this case was the same as in the former; and here, also, after the tinct. cantharid. had lessened the diameter, it was found that they would not close under this application alone; but after the cauterising iron had also been applied three times, I had the pleasure to see the fistula heal, and the patient was quite recovered.

PHYSIOLOGICAL AND CHEMICAL RESEARCHES ON THE BLOOD OF THE VENA PORTÆ.

The first number of the forty-fourth volume of *Rust's Magazin* contains an account of some highly interesting researches by Professor Schultz, respecting the chemical and physiological differences between the blood of the vena portæ, and that of the arteries and other veins.

1st. The blood of the vena portæ is in general blacker than other venous blood, although this difference is not always manifest to the sight; it is not reddened by the neutral salts, or exposure to the atmosphere, or by the action of oxygen.

2d. The blood of the vena portæ does not generally coagulate, but when it does, the coagula are less firm than those of the other arteries. In those cases in which it

has coagulated, it liquifies entirely or partly at the end of from twelve to twenty-four hours, and produces, as well as that which does not coagulate, a black sediment, upon which is formed clear serum.

3d. The blood of the vena portæ contains on an average, when fresh, 5·23 per cent., and when dry, 0·74 per cent. less fibrine than the blood of the arteries and the other veins.

4th. The liquid blood of the vena portæ contains generally a little less solid matter (0·18 to 0·3 per cent) than the arterial blood and the other venous blood.

5th. Its serum contains generally 58·1 less solid matter than the arterial serum, and 0·80 less than that of other venous blood. In the dry state, the first is of an ash-grey, the second yellow, the third greenish-yellow.

6th. The blood of the vena portæ contains proportionably more cruor and less albumen; the contrary is the case in the arterial blood. The dry cruor of the vena portæ is brownish-grey, that of the other veins deep red, that of the arteries bright red.

7th. The blood of the vena portæ contains, in its solid parts, almost twice as much fat as that of the arteries and the other veins. The proportion is as follows:—

Blood of the vena portæ ..	1·66	per cent.
Arterial blood	0·92	"
Venous blood of the other veins	0·83	"

8th. The dry serum of the vena portæ contains but 0·27 per cent. more fat than the dry serum of the arteries and the other veins.

9th. The albuminous cruor of the vena portæ contains 1·11 per cent. more fat than that of the arterial blood, and 1·21 per cent. more than that of the blood of the other veins.

10th. It is in the fibrine that this difference is the greatest. The dry fibrine of the vena portæ contains 10·70 per cent. of fat; that of the arteries 2·34 per cent.; so that the difference is 8·36 per cent.

11th. The fat of the blood of the vena portæ is blackish-brown and unctuous; that of arterial blood and other venous blood white, or yellowish-white, and crystalline; that of the white chyle to two-thirds liquid and one-third crystalline.—*American Journal of the Medical Sciences*, Feb. 1836.

Grief is good for none but such as are very fat.—*Ambrose Paré.*

RESPONSIBILITY OF SURGEONS.

The following case will probably be interesting to many readers. It will serve to show what risk is sometimes incurred, even when a professional man, on being called in to a critical case, exercises his best judgment and discretion.

Monmouth, March 29, 1836.—Plaintiff (Walker), an attorney, brought an action against defendant (Jones), a surgeon, to recover damages for unskilful treatment.

On the 2d of June last, plaintiff was attacked with paralysis,—it was a slight attack, merely affecting one of his legs and the corner of his mouth. Mr. Jones attended, prescribed, and sent him medicine. In the middle of the night plaintiff had a fit. Defendant was sent for, and bled the patient copiously. Dr. Morris, of Chepstow, was then called in, who directed leeches to be applied. Plaintiff remained under Mr. Jones's care for two days longer, and took some doses of calomel. On the fourth day, becoming impatient, the plaintiff went to Chepstow, when he put himself wholly under Dr. Morris's care. He remained severely ill, and subjected to very violent remedies, until the end of August, when he recovered.

It was imputed to the defendant, that he ought to have bled the plaintiff in the first instance; the premonitory symptoms being such as clearly indicated the impending attack, which might have been prevented by the timely use of the lancet.

Dr. Morris, however, who was examined for the plaintiff, on cross-examination, admitted that some surgeons do not consider it advisable to bleed in all cases of impending paralysis, and that he could not say that the defendant's conduct, in the present instance, had been unskilful or negligent. — Thereupon the plaintiff submitted to a nonsuit.

NITRO-MURIATIC ACID BATH.

To the Editor of the Medical Gazette.

Sir,

Dr. Sutherland, in your number for the 9th of this month, very laudably vindicated for our countryman, the late Dr. Scot, the credit of having been the first to recommend the use of a nitro-muriatic acid bath in affections of the liver, in opposition to some recent pretensions of a M. Schlesinger, in *Hufeland's Journal*.

My object in troubling you with this note is to correct a slight error into which

Dr. Sutherland has fallen, in supposing that Dr. Scot never published anything on the subject, with the exception of the printed document which he (Dr. Sutherland) forwarded to you. In the eighth volume of the Medico-Chirurgical Transactions, at page 171, he will find a paper by Dr. Scot, "On the Internal and External Use of the Nitro-muriatic Acid, in the Cure of Diseases." It was read to the Society on March 4, 1817, and is dated June 3, of that year—dates sufficiently ancient, I opine, to put out of court any modern German who may claim, at this time of day, the bath as his discovery.

But is the said bath of any use? I once tried it, but it did not seem to effect any change whatever upon the system.

I am, sir,
Your obedient servant,
WM. MACLURE.

14, Harley-Street,
April 18, 1836.

MEDICO-CHIRURGICAL TRANSACTIONS.

GENERAL INDEX.

WE have received a copy of the newly-published Index to the first eighteen volumes of the Transactions of the Royal Medico-Chirurgical Society. Every medical man, who is at all conversant with the literature of the profession, must appreciate the advantages of having such a guide, in exploring the excellent things contained in this valuable collection. To Mr. J. F. South, we are indebted, it appears, for the present boon; and that gentleman, for his zeal and diligence, is certainly entitled, not only to the compliment paid him by his fellow members, but to the general thanks of the profession.

ROYAL COLLEGE OF SURGEONS.

JACKSONIAN PRIZE.

THE Jacksonian Prize for the year 1835 has been adjudged to Mr. Frederick Ryland, of Paradise-Street, Birmingham, for a dissertation on "Injuries and Diseases of the Larynx; also of the Trachea; and Treatment."

EDMUND BELFOUR, *Sec.*

NEW MEDICAL WORK.

The Structure of the Eye, with reference to Natural Theology. By Wm. Clay Wallace. 12mo. pp. 52; 21 woodcuts. New York, 1836.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

April 21, 1836.

Thomas Jennings Wigney, Huddersfield.
James Shilleto, York.
George Henry Marshall, Wallingford.
Edward Davies, Merthyr, Glamorganshire.
Robert Comport Zinzan.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *April* 19, 1836.

Age and Debility	30	Heart, diseased	4
Apoplexy	7	Hooping Cough	11
Asthma	10	Inflammation	19
Cancer	2	Bowels & Stomach	2
Childbirth	1	Brain	2
Consumption	55	Lungs and Pleura	7
Convulsions	23	Insanity	3
Croup	3	Measles	5
Dentition or Teething	4	Mortification	3
Dropsy	17	Paralysis	1
Dropsy on the Brain	12	Rheumatism	1
Epilepsy	1	Small-pox	5
Erysipelas	2	Thrush	1
Fever	1	Unknown Causes	3
Fever, Scarlet	2		
Fever, Typhus	1	Casualties	9
Gout	1		

Decrease of Burials, as compared with the preceding week . . 25

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ N.
Longitude 0° 3′ 51″ W. *of Greenwich.*

April, 1836.	THERMOMETER.		BAROMETER.	
Thursday . 14	from 35	to 54	29·87	to 29·92
Friday . . 15	45	58	30·04	30 12
Saturday . 16	25	58	30 08	33·03
Sunday . . 17	37	49	30 02	30·07
Monday . . 18	32	56	30·04	30·02
Tuesday . . 19	35	56	30·03	30·01
Wednesday 20	42	54	29·94	29·81

Prevailing winds, E. by N. and S. by W.

Except the afternoon of the 15th and morning of the 16th, generally cloudy, with frequent showers of rain.

Rain fallen, ·3 of an inch.

CHARLES HENRY ADAMS.

NOTICES.

"D. R. M." We doubt whether we should have room for the proffered letters of our correspondent: perhaps it were as well not to send them just at present.

Communications from Worcester and Warwick, relative to the meetings of the profession in those towns, have been received: they shall be duly attended to.

Several valuable papers, from various quarters, have been unavoidably postponed, for want of space; but they shall have an early insertion.

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, APRIL 30, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XXXI.

I PROCEED, in this lecture, to notice the second class of metals; namely, the *electro-negatives*, or those which, when combined with oxygen, form by preference acids. One of the most important of these is

ARSENICUM,

the only pharmacological compound of which is

Arsenious Acid.

History and synonymes.—Arsenious acid, commonly termed *white arsenic*, or the *oxide of arsenic*, is first distinctly mentioned by Geber, who gives more than one process for obtaining it by sublimation. Theophrastus, indeed, speaks of ἀρρενικον, and Dioscorides of ἀρσενικον; but these terms refer to a sulphuret of arsenic.

Native state.—Arsenious acid is found native and uncombined at Andreasburg, in the Harz, and at other places, but is not a common mineral. It never occurs in the organized kingdom.

Preparation.—A few years since nearly all the arsenious acid employed in this country was imported from Germany, whereas now, I am informed, it is principally obtained from Cornwall. Mr. Peters, one of my pupils, and a resident in the neighbourhood of the Cornish arsenic works, tells me there are but two of these works in the county—namely, one at Perran, near the Devran stream-works, and one on the Carnon stream-works,—both near Truro.

The processs for procuring the acid may be divided into two parts: the first consists in roasting the ore; the second in refining it.

(*a.*) The *roasting* is performed in Cornwall in a reverberatory furnace,—in Silesia, in a kind of mufiling furnace. The ore employed varies at different places. At Altenburgh, in Silesia, it is *arsenical pyrites*, or *mispickel* (a compound of 1 atom arseniet of iron, and 1 atom sulpho-arsenite of iron), whereas at Reichenstein, in the same country, it is *sesquiarseniet of iron*. In Saxony it is obtained as a secondary product in the roasting of cobalt ores; and in Cornwall, Mr. Peters tells me, the ores of copper are employed. By this process the metallic arsenicum is oxidized, and converted into arsenious acid, which is volatilized, and afterwards condensed in a pulverulent form in chambers attached to the furnaces.

(*b.*) The *refining* is effected in cast iron pots, to which cylindrical iron heads are attached, which at the tops are contracted into cones, each terminating in a pipe made of sheet-iron. Heat is then applied for twelve hours, by which the arsenious acid is sublimed and condensed on the sides of the iron head.

Properties.—When recently prepared, arsenious acid is in the form of large, glassy, transparent cakes, sometimes colourless, at others having a yellowish tinge. Frequently the cakes consist of concentric laminæ, formed by the successive sublimations. Most curiously, these masses soon become opaque and white externally, like enamel, the opacity gradually extending towards the centre; and in some cases the acid becomes friable and pulverulent. Now what can be the cause of this change? I do not believe that the masses gain any increase in weight, and, therefore, they cannot become hydrated, as Krüger fan-

cies. Professor Guibourt suspects that the acid absorbs ammonia from the air, though he was unable to prove it. He also states that the specific gravity, the solubility, and the acid properties, of the opaque and transparent varieties, are different.

Transparent Arsenious Acid.

Sp. gr. 3·7385 (or 3·7391.)
Soluble in 103 parts of water at 59°.
Soluble in 9·33 parts of water at 212°.
Its solution feebly reddens litmus.

Opaque variety.

Sp. gr. 3·695.
Soluble in 80 parts of water at 59°.
Soluble in 7·72 parts of water at 212°.
Its solution restores reddened litmus.

But I find that both kinds redden litmus, and Dr. Christison has observed the same. I think, therefore, that as we have no ground for asserting their composition to be different, we ought to regard them as isomeric compounds. Arsenious acid has little or no taste, as Plenck, Addington, and Christison, have remarked; and neither in the solid nor vaporous form has it odour. We may readily obtain the acid in a crystalline condition by sublimation or solution: the crystals are usually regular octahedrons. It is of importance to know that the presence of organic matters very much impairs the solvent power of water for this acid; a circumstance which readily explains why no arsenious acid has, in some cases, been found in the liquid contents of the stomachs of persons poisoned by it.

Composition.—This acid is composed of—

	Thomson.		*Berzelius.*	
Arsenicum	1 atom	= 38	2 atoms	= 75·33
Oxygen	$1\frac{1}{2}$ atoms	= 12	3 atoms	= 24·03
		50		99·66

Characteristic tests.—This part of our subject will be most conveniently examined under three heads: first, the tests for a clear solution of arsenious acid; secondly, the tests for solid arsenious acid in its pure unmixed form; and thirdly, the tests for arsenious acid when mixed with organic substances, such as the contents of the stomach.

1. *Tests for a clear Solution of Arsenious Acid.*

A considerable number of tests have been proposed, but only four deserve much notice; namely, *ammoniacal nitrate of silver*, *ammoniacal sulphate of copper*, *sulphuretted hydrogen*, the *reduction process*, and the formation of *arsenietted hydrogen*.

(*a.*) *Ammoniacal nitrate of silver.*—We are indebted to Mr. Hume (late of Long Acre) for this test, and hence it is frequently termed *Hume's test.* The mode of preparing it is this: add a few drops of *liquor ammoniæ* to a solution of nitrate of silver, so that the oxide of silver which the alkali at first throws down may be nearly but not entirely redissolved. Great care is requisite to add neither too much nor too little; for if too much be employed, the solution will not occasion any precipitate with arsenious acid; and if too little, it will produce a precipitate with phosphate of soda similar in colour to that produced with arsenious acid. The only certain way of knowing when the proper quantity has been employed, is to test it: arsenious acid, but not phosphate of soda, ought to occasion a precipitate with it. When a solution of arsenious acid, and of ammoniacal nitrate of silver, are mixed, two new compounds are formed,—nitrate of ammonia in solution, and the yellow arsenite of silver, which precipitates. The substance most easily confounded with arsenite of silver is the yellow phosphate of silver; but if the test have been properly prepared, the nitrate of ammonia will keep the phosphate in solution. If the suspected liquid contain a free acid (as nitric, acetic, citric, or tartaric), the arsenite will not precipitate until the acid be saturated, when it readily separates.

There are two objections to this test, which very much diminish its value: if any chlorides be present (common salt, for example), we get a white precipitate of chloride of silver, even though the suspected liquid contains a considerable quantity of arsenious acid. To obviate this difficulty, you must proceed thus: before applying the test add a few drops of nitric acid, and then an excess of a solution of nitrate of silver. By this means the chloride salt will be got rid of, while the arsenious acid is left in solution. The liquid is then to be filtered, to remove the precipitated chloride of silver, and the test applied to the clear liquor. It is necessary I should caution you against an optical fallacy: I have here a yellow liquid, to which I shall add a little common salt, but no arsenious acid. If now ammoniacal nitrate of silver be applied, a white precipitate is produced, which, seen through a yellow medium, has been mistaken for a yellow precipitate. The second objection to this test is, that the presence of much organic matter will impede its proper action.

(*b.*) *Ammoniacal sulphate of copper.*—This test is prepared by cautiously adding *liquor ammoniæ* to a solution of sulphate of

copper, so as to redissolve the oxide of copper which it at first throws down. Care must be taken not to add more alkali than is necessary, otherwise the liquor will not precipitate arsenious acid; and to use dilute liquids, for a concentrated solution of the ammoniacal sulphate, will not produce the desired effect. When we mix, properly prepared, ammoniacal sulphate with arsenious acid, a green precipitate of the arsenite of copper falls down, while sulphate of ammonia remains in solution. The objections to this test are, that astringents prevent its action; and thus, if the poison were taken in tea, this test would not detect it. Secondly, yellow coloured and other fluids of an organic nature, give a greenish tinge and slight precipitate, even though no arsenious acid be present.

(c.) *Sulphuretted hydrogen.* — If this gas (now usually termed hydrosulphuric acid) be passed through a solution of arsenious acid, a yellow precipitate of sesquisulphuret of arsenicum (orpiment) is produced, while the oxygen of the arsenious acid and the hydrogen of the sulphuretted hydrogen unite to form water. In order, however, for this effect to be produced, it is necessary that the liquid be slightly acidified by acetic acid. If the liquid be already acid, we must neutralize it by cautiously adding an alkali, and then acidify by acetic acid.

In performing the above operation, applying this test we may place the suspected liquid in a test-tube, or conical wine-glass; the gas being developed in a common Florence flask (or two-necked bottle, as recommended by Dr. Christison:) the mouth of the flask is closed by a cork, perforated by a tube curved twice at right angles. The ingredients for developing the gas are a metallic sulphuret (as of iron or of antimony), and sulphuric or hydrochloric acid. I prefer the sulphuret of iron and sulphuric acid diluted with about an equal volume of water. These are to be introduced into the flask previous to the adaptation of the cork. After the gas has passed through the arsenical liquid for a few minutes, portions of the sesquisulphuret of arsenicum begin to fall down, and the separation of the precipitate is promoted by acetic acid, by exposure to the air, and by ebullition.

Sulphuretted hydrogen produces a somewhat similar yellow-coloured precipitate with *solutions of cadmium*, *of the persalts of tin*, *of selenic acid*, and with the *antimonial compounds*; for example, with *tartar emetic*. As *cadmium* has sometimes been found in the preparations of zinc, you ought to be aware of the possible fallacy of sulphuretted hydrogen as a test for arsenious acid. I have never met with any of the pharmaceutical preparations of zinc contaminated with cadmium; but "during the apothecaries' visitation in the state of Magdeburgh, there was found, in the possession of several apothecaries, a preparation of zinc from Silesia, made in Hermann's laboratory, at Schönebeck, which was confiscated, on the supposition that it contained arsenic, because its solution gave a yellow precipitate with sulphuretted hydrogen, which was considered as orpiment. This statement could not be indifferent to M. Hermann, as it affected the credit of his manufactory; especially as the medical counsellor, Roloff, who had assisted at the visitation, had drawn up a statement of the circumstances which occasioned the confiscation, and caused it to be published in Hufeland's Medical Journal. He subjected the suspected oxide to a careful examination, but he could not succeed in detecting any arsenic in it. He then requested Roloff to repeat his experiments. This he did; and now perceived that the precipitate which he had taken for orpiment, was not so in reality, but owed its existence to the presence of another metallic oxide, different from arsenic, and probably new. Specimens of this oxide of zinc and of the yellow precipitate were sent to Stromeyer for examination, who readily recognized the presence of cadmium, and was able to extract from it a considerable quantity of that metal."

In regard to the *persalts of tin*, you should be aware that the perchloride which is sold for the use of dyers, under the name of the *permuriate* or *spirit of tin*, occasions a yellowish precipitate of the bisulphuret of tin, somewhat resembling sulphuret of arsenicum.

If sulphuretted hydrogen be passed through a weak solution of *tartar emetic*, we obtain a precipitate usually reddish, but sometimes a yellowish liquid is formed, not distinguishable by its colour from that produced with arsenious acid. I am aware that my friend, Dr. Christison, says that both he and Dr. Turner never saw the antimonial precipitate assume the yellow colour of sesqui-sulphuret of arsenic. But I have been accustomed, for years, to show in lecture the similarity of the two precipitates. [The experiment was here shown.] You observe that to produce this effect I have employed a very dilute solution of tartar emetic, and have passed sulphuretted hydrogen through it for a few seconds only. If I now pass more gas through it, the colour of the liquid becomes redder. Antimonial preparations containing the peroxide of this metal, occasion paler-coloured precipitates with sulphuretted hydrogen than tartar emetic does.

Hydrosulphuret of ammonia. — Sometimes the hydrosulphuret of ammonia is em-

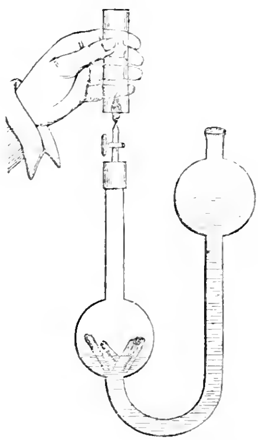
ployed instead of sulphuretted hydrogen gas. In that case, an acid should be added at the time of employing it, to neutralize the ammonia. In the hands of an experienced experimenter, it is sometimes a good test; but it is liable to some fallacies which might deceive persons unaccustomed to chemical manipulation. One most important objection to it, is, that if kept in a bottle only partially filled, it undergoes some chemical changes; in consequence of which its reaction on the metals is modified. I accidentally discovered this: I find that if two or three drachms of the hydrosulphuret be exposed to the air for a day or two in a wine-glass, it becomes covered with a thin film of sulphur, and acquires the power of precipitating a solution of the acetate of lead *red*, and of tartar emetic *yellow*.

(*d.*) *Reduction process.*—This is by far the best and most certain means of recognizing arsenious acid. To perform this process, sulphuretted hydrogen is to be passed through the suspected solution, (as described when noticing the last test) and the yellow sesquisulphuret of arsenic which precipitates, to be carefully collected, dried, mixed with a little charcoal and carbonate of potash, or of soda, and introduced into a test-tube, the best form for which is one having a narrow neck, with a small bulb at the end. An intimate mixture of charcoal and carbonate of potash is readily procured by heating the bi-tartrate of potash in a crucible, until no more volatile matter is evolved: the residue is termed *black flux*. Instead of this, a mixture of two parts ignited carbonate of soda, and one of charcoal, may be employed. The mixture of arsenious acid, alkaline carbonate, and charcoal, is then to be heated by a spirit-lamp: the sulphur of the arsenical sulphuret uniting with the metallic base (sodium, or potassium) of the alkali, forms a sulphuret, and the metallic arsenicum is volatilized and condensed, forming a brilliant crust on the side of the tube. The characters of the arsenical crust are, the brilliancy of the outer surface, which is frequently equal to polished steel, or looking-glass; the crystalline appearance, and greyish-white colour, of the inner surface of the crust; its volatility; and its conversion into octahedral crystals, (arsenious acid) when sublimed up and down the tube.

If the metallic crust be well formed, the characters just mentioned are sufficient to recognize it: but on some occasions these appearances are only imperfectly presented. Thus when the arsenical sulphuret has been mixed with a little animal matter, the metallic character of the sublimed arsenic may be completely masked; and it may be impossible to decide merely by physical examination, whether the black crust be metallic arsenic, or a carbonaceous substance. Whenever, therefore, the least doubt is entertained, you must seek for further evidence of the existence of the metal. For this purpose, let the narrow portion of the tube which contains the crust, be cut off by a file, and having roughly powdered it, introduce into another tube, and apply heat. Or we may dissolve the suspected crust in nitric acid, and evaporate to dryness, by which we obtain arsenic acid: this is easily recognized by adding a solution of nitrate of silver, by which a brick-red precipitate of arseniate of silver is produced. This arseniate may be reduced, if necessary, by mixing it with charcoal and boracic acid, and heating in a glass tube.

(*e.*) *Formation of arseniuretted hydrogen**.—If a liquid containing a small portion of arsenious acid, or arsenite of potash (Fowler's solution answers very well), be added to the ingredients for generating hydrogen gas (namely, water, zinc, and sulphuric acid), we obtain hydrogen and arseniuretted hydrogen gases. The latter may be recognized by the following characters: the colour of the flame, which is bluish white; by burning it from a small jet pipe, within a narrow glass tube, a deposit of white arsenious acid, and of the brown hydruret of arsenicum, is formed on the side of the tube, while an alliaceous odour is very evident. Here is a drawing of the apparatus which I have employed for this experiment, but I think it is susceptible of improvement.

FIG. 97.



* This test I have only lately become acquainted with. Mr. Button, of the firm of Dymond and Co. Chemists, Holborn, tells me it was discovered by

I have not added less than $\frac{1}{20}$ of a grain of arsenious acid, but I am told $\frac{1}{150}$ of a grain will suffice; and I do not doubt the correctness of the information, seeing, that with $\frac{1}{20}$ of a grain I could make at least twenty experiments, and each time detect the arsenic, so that the quantity consumed in each experiment could not be more than $\frac{1}{400}$ of a grain.

Having some liquid in my possession, which had been removed from the stomach of a man poisoned by arsenious acid, and which, of course, contained animal matter, I introduced a portion of it into the apparatus, and readily detected the arsenic, by the means first mentioned, so that the presence of organic substances did not impede the action of the test. And I ought to remark, that this liquid gave no indication of arsenious acid with the ammoniacal sulphate of copper, nor with ammoniacal nitrate of silver, though sulphuretted hydrogen produced a yellow precipitate with it.

An objection to the test is, that with organic matters the liquid is apt to froth a great deal, by which it is difficult to obtain a good jet of gas; however, I, in part, obviated this, by adding a little alcohol, and evolving the gas very slowly. I have no doubt that an alteration in the form of the apparatus would partly counteract this.

2. *Tests for Solid Arsenious Acid.*

Solid arsenious acid is easily recognized by the following characteristics:—

(*a.*) *Its volatility.* — If I place on the point of a penknife a small portion of this acid, and introduce it within the flame of a spirit-lamp, you will observe that it is easily volatilized, and produces a white smoke. However, several other substances have a similar property: for example, *sal ammoniac.*

(*b.*) *The garlic odour of the vapour of metallic arsenicum.*—If a red-hot cinder be placed in a saucer, and a small portion of arsenious acid be thrown on it, the carbon of the cinder deoxidizes the acid, and the resulting metallic arsenicum is converted into vapour, which may be recognized by its garlic smell. But the test is not one of much value; for the garlic smell may be masked by the presence of organic matters, as flour, which, in burning, develops a strong odour; and, on the other hand, this smell is not peculiar to arsenious acid, since phosphorus, and some other bodies, give it out when heated. Vauquelin, Barruel, and Orfila, have shewn that a compound of albumen and fat, which evolved this odour when heated, did not contain a particle of arsenious acid. "It is true," say these experimenters, "that arsenicum does evolve a garlic odour when volatilized; but even when this is well characterized, it is insufficient to establish the existence of the oxide of arsenic, since it belongs to some other substances; and it is not impossible that there may be developed in the stomach, during digestion, substances which exhale an analogous odour, when heated."

(*c.*) *The reduction process.* — If arsenious acid be mixed with charcoal, or back flux, and heated in a glass tube, a metallic crust of arsenicum will be obtained, possessing the properties already described.

(*d.*) *Formation of Scheele's green.*—If a small portion of arsenious acid be added to a weak solution of the ammoniacal sulphate of copper, a green precipitate of the arsenite of copper (Scheele's green) will be gradually formed.

(*e.*) *Liquid tests.*—Dissolve the acid in water; apply the liquid tests already described. The ammoniacal nitrate of silver will readily distinguish the arsenious from arsenic acid, since it produces a yellow precipitate with the one, and a red precipitate with the other.

3. *Tests for Arsenious Acid mixed with Organic Substances.*

The most important and difficult part of our subject remains yet to be examined; I mean the recognition of arsenious acid when mixed with organic substances, such as the contents of the stomach.

Sometimes you may observe in the stomach a white powder, or white particles: these are, of course, to be carefully removed; and if they are arsenious acid, no difficulty will be experienced in recognizing them by the tests already mentioned.

If no solid arsenious acid be recognized, we must cut the stomach into small pieces, and boil along with the contents of this viscus for half an hour, in distilled water, to which a little liquor potassæ has been added: then filter, first through muslin, then through paper. Fibrine is insoluble in water, and by boiling albumen is coagulated, so that (with the exception of small portions of these principles held in solution by the alkali) the filtered liquor is free from both fibrine and albumen. A little acetic acid is now to be added, and the liquid boiled, by which any caseum present will be coagulated, and got rid of by filtering a second time. Sometimes the liquor is now found sufficiently free from organic matters to enable us to detect the arsenious acid very

Mr. Marsh, of Woolwich, who is already known to the public, as having made some improvements in electro-magnetic apparatus.

readily. Dr. Christison says, that if the ammoniacal-nitrate of silver acts characteristically, (that is, gives a copious yellow precipitate) the liquid is sufficiently free from foreign matter. If it does not, evaporate to dryness by a gentle heat, and boil the residue in repeated portions of distilled water. We shall thus obtain an arsenical solution, which is to be decomposed by passing sulphuretted hydrogen gas through it, and the resulting sesquisulphuret reduced, as already described.

Another means of recognizing arsenious acid, when mixed with organic matters, is the formation of arseniétted hydrogen, already noticed.

Physiological effects.—I propose to take a general review of the operation of arsenious acid on the organized kingdom, under three heads—first, its effects on vegetables; secondly, its effects on animals generally; and, thirdly, its effects on man.

1. The *effects of arsenious acid on vegetables* have been studied by Jäger, Seguin, Marcet, Macaire, and others; and from their observations we learn that it is poisonous to all families of plants. It appears that seeds which have been immersed in a solution of it are incapable of germinating, and that buds which have been plunged in it are no longer capable of developing. When roots or stems are immersed, the death of the plant occurs, preceded by drooping and alteration of the colour of the leaves, as well as of the petals. If the stem of the common barberry (*berberis vulgaris*) be placed in dilute hydrocyanic acid, or in an aqueous solution of opium, the stamens lose their remarkable contractile power, but remain flexible. If, however, we employ a solution of arsenious acid, the plant equally dies, but the stamens become stiff, hard, and retracted, and on any attempts being made to alter their position, they readily break. These curious facts seem to prove that the effects produced by this acid on vegetables are very different from those caused by hydrocyanic acid and opium; for the latter seem to exhaust the irritability, while the former seem to give rise to a condition very analogous to the spasm of animals.

2. The *effects of arsenious acid on animals generally* are interesting, and have been the subject of numerous experiments, some of which are recorded in Wibmer's work "*Die Wirkung der Arzneimittel und Gifte.*" On every animal on which the operation of this acid has been tried, the effects have been poisonous. Jäger has published an elaborate account of the toxicological effects of this substance on the different classes of animals; and from his experiments we learn that death is always preceded by inordinate actions and increased evacuations, especially from the mucous membranes. In most animals the stools were frequent and fluid; and in those in which mucus is secreted on the surface, it was remarkably increased. The power of voluntary motion and susceptibility of external stimuli were decreased; and after death the muscles soon ceased to be influenced by the galvanic agency. In animals that breathe by lungs, respiration became difficult and laborious; and in warm-blooded animals great thirst was experienced. In birds and mammals convulsions came on, preceded by vomiting, except in those animals (as the rabbit) which cannot vomit.

3. The *effects of arsenious acid on man* now require our attention; and I propose to examine this part of our subject under three heads.

(*a.*) *In very small* or *therapeutical doses* (as the 16th or 12th of a grain), no injurious effects are usually observed, unless the acid be taken for a long period; indeed, some writers go so far as to assert that in this dose arsenious acid is a strengthening remedy, that it improves the appetite, invigorates digestion, promotes assimilation and secretion, excites the muscular and nervous functions,—in a word, acts as a *tonic.* I cannot, however, subscribe to this doctrine, because I have never been able to see the effects here asserted. It is, indeed, true that patients sometimes experience a temporary increase of appetite from the use of small doses of arsenic; and it is also certain that this remedy is frequently beneficial in agues, and other diseases in which tonics have been found efficacious. But the analogy between the action of arsenious acid and that of the vegetable tonics (as cinchona, to which Vogt compares it) stops here. I have sought in vain for other evidences of a tonic operation. I have seen very minute doses of arsenic given to patients affected with lepra, and continued for many days, without being able to detect the least indication of its action on the system, except the amelioration of the disease. When the dose was slightly increased, the appetite in some cases appeared to increase; but this effect was neither universal nor continued. Very shortly afterwards nausea, or even vomiting, came on; a febrile condition of the body was set up; the patients usually complained of great languor and inaptitude for employment; and sometimes these symptoms were accompanied or followed by redness of the eyes and swelling of the face: effects which are so different from those produced by the remedies called strengthening, that I cannot regard arsenic as a tonic. In proof of the beneficial effects of this substance, we are gravely told that the country people of upper Styria, in Austria, use arsenic as a

stomachic, and as a condiment for many kinds of food,—for example, cheese; and a healthy peasant himself tells us that he was accustomed to take two grains of arsenic daily, without which, he assures us, he could not live! In further proof of this strengthening action of arsenic, Vogt says that it promotes the appetite, the activity, and the power of old enfeebled horses, and mentions that Jäger noticed the same effects on a pigeon. To the first of these statements, namely, the beneficial effects from the use of arsenic as a condiment, I must confess I cannot give credence; and, with respect to its action on horses, it is, I believe, well established that it acts as a virulent poison on these animals. On this point, however, I have already offered a few remarks in a former part of the course*.

(*b.*) *Slow*, or *chronic poisoning*, by arsenious acid next deserves our notice. The long-continued use even of the already noticed small or therapeutical doses will ultimately produce disease, and even death. Sometimes the digestive apparatus, at other times the nervous system, first shews symptoms of the poisonous operation. But let me offer a case by way of illustration.

A gentleman affected with lepra, for whom I had prescribed a few drops of the liquor arsenicalis, to be taken twice daily, not observing any effect, thought proper to increase the dose without consulting me. In a few days he became very unwell, though he did not suspect the cause, and without being able to tell precisely what was the matter with him. I found him listless and dull, indisposed for business, and with great depression of his muscular power: he complained of loss of appetite, thirst, and want of sleep; his limbs trembled, his skin was hot, and his pulse quick; occasionally he experienced cramps in his legs. I had no doubt these symptoms were brought on by the use of the arsenic, and therefore, of course, ordered him immediately to suspend its use, which he did, and in a few days he was quite restored.

Now, this case is an apt illustration of the gradual progress made by this poison in destroying health, and, if persevered in, of causing death. You will not, therefore, be surprised, to find that it has been employed to produce slow poisoning; and its effects have been very concisely, though graphically, described by Hahneman, (and which I quote from Dr. Christison's work) as follows:—"There are," says he, "a gradual sinking of the powers of life, without any violent symptom; a nameless feeling of illness, failure of the strength, an aversion to food and drink, and all the other enjoyments of life. Dropsy closes the scene, along with black miliary eruptions and convulsions, or colliquative perspiration and purging."

On some occasions, the first symptoms which I have observed of its poisonous operation, have been thirst, redness of the conjunctiva and eyelids, followed by an eruption. At other times, irritation of stomach is the leading symptom. In some cases ptyalism is brought on. Marcus, in the Ephemerides for 1809, has noticed this effect: and in the 16th volume of the MEDICAL GAZETTE, you will find five cases reported by Mr. Furley, in which salivation was observed.

The following is an abstract of the morbid symptoms produced by the continued employment of small doses of arsenious acid, but which are more or less modified in different cases:—Disorder of the digestive functions, characterized by flatulence, sensation of warmth, or actual pain, in the stomach and bowels; loss of appetite; thirst, nausea, and vomiting; purging, or at least a relaxed condition of the bowels; furred tongue, with dryness and tightness of the mouth and throat, or with salivation. The pulse is quick, small, and sometimes irregular; the respiration oppressed, and accompanied with a dry cough. The body wastes; the stomach being frequently so irritable that no food can be retained in it. Headache, giddiness, and want of sleep, are sometimes observed. The limbs become painful, feeble, trembling, subject to convulsions; occasionally benumbed, and ultimately becoming paralyzed. The cutaneous system, in some cases, becomes affected, an eruption makes its appearance, and now and then the hair and nails fall off. Swelling of the feet and of the face is not unfrequently observed; and under these symptoms the patient gradually sinks, in some cases retaining his consciousness to the last, but at other times delirium or stupor being present.

(*c.*) *Acute poisoning by arsenious acid* does not always present the same phenomena. In some cases, the principal or leading symptoms are those indicating gastro-enteritis; the nervous system being not obviously affected, or at least only slightly. In other cases, the gastro-enteritic symptoms are absent, and the principal operation of the poison is on the vascular and nervous systems. Lastly, there are other cases in which we observe both gastro-enteritic disorder with the affection of the nervous and vascular systems.

1. *Acute poisoning, with symptoms of gastro-enteritis.*—Some time after swallowing arsenious acid, nausea and vomiting come on, attended with burning pain in the

* MEDICAL GAZETTE, vol. xvii. pp. 6 and 7.

throat and stomach, and which soon extends over the whole abdomen. Pain and vomiting, however, are not invariably present. The matters vomited vary in their nature and appearance; sometimes being bilious, at other times tinged with blood. Frequently there is a sense of heat, dryness, tightness, and constriction of the throat; accompanied with incessant thirst, and occasionally with an almost hydrophobic difficulty of swallowing. The lower part of the alimentary canal soon becomes affected, indicated by the burning pain, which is increased on pressure—by the hard and tense condition of the abdomen—by the diarrhœa (the stools sometimes being bloody)—by the tenesmus, and by the occasional heat and excoriation of the anus. When the lower part of the alimentary canal is powerfully irritated, the urino-genital apparatus becomes affected; and thus we sometimes find difficulty in passing the water, with burning pain in the genital organs. The constitutional symptoms are, in part, such as you might expect from this violent local disorder: thus the pulse is quick, but at the same time small, feeble, and irregular; cold clammy sweats; the action of the heart is irregular, giving rise to palpitation; the breathing is short, laborious, and often painful; the tongue is dry and furred; and the membrane lining the air-passages feels hot, and oftentimes painful.

Although, in this form of acute arsenical poisoning, the gastro-enteritis is the principal, and in some cases almost the only affection, yet there is generally observed some symptoms indicative of disorder of the cerebro-spinal system: sometimes in the form of tremblings or cramps of the limbs, or delirium, and even, in the last stage, insensibility. Occasionally, also, eruptions take place.

In this form of poisoning, death usually occurs in from twenty-four hours to three days after the administration of arsenic; but Dr. Christison says that Pyl has recorded a case where death occurred in three hours after swallowing the poison.

2. *Acute poisoning, with disorder of the cerebro-spinal and vascular systems, without any remarkable symptoms of gastro-enteritis.*—In both man and other animals arsenious acid occasionally acts as a narcotic poison, there being little (or even no) pain, vomiting, or purging. The symptoms in these cases are usually faintness, or perhaps actual syncope, convulsions, or paralysis; and sometimes insensibility, at other times delirium. When these symptoms occur, they constitute the state called *narcotism*. Of this form of arsenical poisoning (which is somewhat rare), Dr. Christison has given an abstract of twelve recorded cases. In most of them the quantity of arsenious acid taken was large,—as half an ounce, or even an ounce.

3. *Acute poisoning, with symptoms of gastro-enteritis, followed by an affection of the cerebro-spinal system.*—The gastro-enteritic symptoms are such as I have already noticed in speaking of the first kind of acute arsenical poisoning, and, therefore, need not be again described. When, from the smallness of the quantity of the poison swallowed, or from other circumstances, the patient recovers from the gastro-enteritis, symptoms of cerebro-spinal disorder sometimes make their appearance. The kind of disorder, however, varies considerably in different individuals. "The most formidable," says Dr. Christison, "is coma; the slightest, a peculiar imperfect palsy of the arms or legs, resembling what is occasioned by the poison of lead; and between these extremes have been observed epileptic fits, or tetanus, or an affection resembling hysteria, or madness."

The *morbid appearances* produced by arsenious acid next require to be noticed. When arsenious acid kills by its narcotic operation (constituting the second kind of arsenical poisoning which I have described), no morbid condition is observable after death. In other cases, however, various alterations are observed, which may be most conveniently arranged under the following heads:—

(*a.*) *Morbid appearances of the alimentary canal.*—The alterations observed in the condition of the intestinal canal vary with the quantity of the poison taken, and probably with other circumstances, but they are all indicative of inflammation: thus we have redness as one symptom, sometimes accompanied with extravasations of blood into the tissue of the canal; ulceration is also frequently observed, sometimes softening of the mucous coat, effusion (of lymph or blood), and occasionally even gangrenous spots.

(*b.*) *Morbid appearances of the vascular system.*—The blood is sometimes, though not invariably, fluid after death, and dark coloured. The heart is mostly flabby, and it is asserted that on its inner surface (especially the carneæ columnæ and valves, particularly of the left side), is redness, sometimes diffused, sometimes in the form of spots, and which penetrates a line in depth into the substance of the heart. The pericardium usually contains serum.

(*c.*) *Morbid appearances of the respiratory system.*—These are neither very remarkable nor constant, and principally consist in redness of the pleura, effusion of lymph or serum into the cavity of the pleura, red spots, and occasional congestion of the lungs, and redness of the membrane lining the air tubes.

(*d.*) The *morbid appearances of other parts* deserve little attention. In some cases inflammation, and even gangrene, of the *genital* organs have been observed; the *conjunctiva* is sometimes very vascular; and alterations are occasionally observed in the condition of the skin. Redness, extravasation of blood, and effusion of serum, are said to have been seen in the *brain*.

(*e.*) *Influence of arsenious acid on the putrefactive process.*—This I shall examine in the next lecture.

ON THE

POISONOUS PROPERTIES OF HEMLOCK,

AND ITS ALKALOID CONIA *.

By Robt. Christison, M.D. F.R.S.E.

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[Concluded from p. 128.]

I have in vain attempted to settle the point—whether conia is the true active principle of the plant—by reference to the existing descriptions of the effects of hemlock by toxicological authors. Passing by, for the present, the statements of ancient authors, which will be reverted to afterwards, and proved not to be confidently referrible to the modern hemlock, we come first to the older modern writers, such as Matthioli and Kircher. The former says, a vine-dresser and his wife, who ate hemlock roots for parsnips, became so delirious, that they ran about the house, frantically knocking themselves against every thing in their way; and the latter says, two monks from the same cause became raving mad, plunged into a pond, taking themselves for geese, and suffered long after from incomplete palsy and muscular pain †. It is difficult, certainly, to connect these narratives with the preceding details of the action of conia. As little connexion can be traced with the matter-of-fact narratives of cases in more recent times, which all point at delirium, coma, and convulsions, as the leading symptoms. These cases, however, are limited in number; few are minutely described; several occurred before physicians had learned to discriminate accurately the external characters of the true hemlock, and other poisonous umbelliferous plants resembling it; in scarcely any of them is allusion made to the risk of error from this cause, or any pains taken to establish the identity of the poison; and in some, including one related by myself, which occurred twelve years ago, the symptoms were taken at second hand, the individuals having died before being seen by a competent observer. The resemblance subsisting between hemlock and various umbelliferous plants, such as *Cicuta virosa*, *Æthusa cynapium*, *Œnanthe crocata*, *Chærophyllum temulentum*, is alone sufficient to vitiate most of the modern descriptions of the poisonous effects of the first species. We know that they often have been confounded together; and hence we can have no certainty what the plant was in special cases of poisoning, where the name merely is given, and the narrative does not contain internal evidence of its exact nature. Singular, then, as it may appear, we are very imperfectly acquainted with the real effects of one of our most familiar poisons on the human body.

For the like reasons, our knowledge of the effects of hemlock on the lower animals is far from being precise or positive. The only unequivocal experiments, indeed, are those of Professor Orfila, and a few performed by Professor Schubarth *; and from these we should infer, that, besides possessing irritant properties, hemlock induces giddiness, convulsions, loss of sensibility, palsy, and coma. This account does not agree with the account given above of the action of conia, which does not seem to affect the senses so long as the respiration goes on. But it is possible that the difference is more apparent than real, and that hemlock has been supposed to extinguish sensation, merely because, by inducing general paralysis, it takes away the power of expression. At least, in some experiments I have made, sensation did not appear to be affected; and the whole phenomena were identical with those produced by conia. In these experiments I used very strong extracts prepared by absolute alcohol from the fresh leaves, or the full-grown seeds; and each of them occasioned, in doses of thirty grains or thereabouts, paralysis of the voluntary muscles, with occasional slight convulsions, then paralysis of the respiratory muscles of the chest and abdomen; and, finally, cessation of the action of the diaphragm; sensation appeared to continue so long as it was practicable to make an observation on the subject; and the heart contracted vigorously for a long time after death. From these extracts a very powerful odour of conia was disengaged by caustic potassa.

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* Transactions of the Royal Society of Edinburgh, vol. xiii. *just published*.

† Wibmer, die Wirkung der Arzneimittel und Gifte, i. 172.

* Horn's Archiv für Medizinische Erfahrung, 1824.

It seems to me clear, therefore, that the action of conia and of hemlock are identical, or nearly so; and that conia is either the active principle of the plant, or contains it in a modified form.

I wish I could have added to these observations on the poisonous effects of conia and hemlock, some account of their physiological properties in small doses. This branch of the inquiry into their action I have not yet been able to investigate. It cannot be pursued with any accuracy by experiments on the lower animals. The phenomena must be ascertained in the human subject chiefly, which I have not hitherto been able to accomplish. On this head it may merely be observed, that, if physicians or physiologists would acquire definite information as to the physiological effects of hemlock in small or medicinal doses, they must begin the inquiry anew. Little importance can be attached to any thing already done in this field, as I have no doubt whatever, that by far the greater proportion of the preparations of hemlock hitherto employed have been of very little energy, and in the doses commonly used are absolutely inert.

Having now accomplished the chief object of this paper, I ought, perhaps, to conclude; but there is a topic remotely connected with it, to which I may be allowed briefly to advert.

I have several times been asked by my literary friends what the poison could have been which was used by the ancient Greeks, and particularly the Athenians, for putting state-criminals to death. This question has engaged the attention of many commentators, and of some modern physiologists attached to the literature and medicine of the classic ages; and the general result has been a belief that our hemlock, the *Conium maculatum* of botanists, is the *Cicuta* of the Romans, the Κωνειον of the Greeks, and the Athenian state-poison. Others, however, have doubted the correspondence here supposed. And, although the adoption by modern botanists of the term *Conium*, for designating the genus to which our spotted hemlock belongs, may seem to set the matter at rest, the question is really far from settled; and the proofs given above of the erroneous or imperfect ideas entertained, even in the present day, of the effects of hemlock, would reopen it even if it had been closed.

This inquiry is obviously one of much interest to every scholar and physician; for, on the one hand, it involves the identification of an ancient medicine of no mean repute; and, on the other, it tends to enliven our conceptions of one of the most interesting periods of classic history, by enabling us to point to a known substance as the poison by which Socrates and Phocion died.

In considering the subject, it is right to inquire, in the first place, whether our knowledge of the botanical and poisonous properties of hemlock corresponds with what ancient medical authors have said of the plant Κωνειον. Here we ought to be at no loss, for both Pliny and Dioscorides have left tolerably minute descriptions of the plant; and Nicander, in his poetical treatise on poisons, has described its effects on the body, and been followed in his description by succeeding writers. Dioscorides, in his fourth book, thus lays down its botanical characters:—"The plant Κωνειον produces a tall stem, jointed like that of fennel (*Anethum fœniculum*); leaves like the ferula (*Ferula communis*), but narrower, and of a heavy smell; branch shoots and umbels at the summit; a whitish flower; a seed like that of anise, but whiter; a hollow root, not deep." The description given by Pliny of the cicuta, which is well made out to have been the Greek Κωνειον, follows closely that of Dioscorides. "The stem . . . . is smooth, jointed like a reed, blackish, taller frequently than two cubits, very branchy at top. The leaves are more tender than those of coriander, of a heavy odour; the seed thicker than anise; the root hollow."

Now it appears to me impossible to refer the plant by these descriptions to the modern *Conium maculatum*. The description of the stem, leaves, summit, flower, and seed, is so vague, that it will apply to twenty umbelliferous species as well as to our hemlock. Pliny's term *nigricans*, applied to the stem, is but a feeble approach to the very remarkable character of the modern plant, the purple-spotted stem,—a character so obvious, that one can scarcely imagine an ancient herbalist omitting it in taking a description from an actual specimen. Leaves narrower than those of ferula, more tender than those of coriander, if modern scholars and physicians are right in so translating the Greek ναρθηξ, and the Latin *coriandrum*, cannot be held to designate with any accuracy the leaves of our conium; and still less will the *radix concava* of Pliny, the ριζα κοιλη και οὐ βαθεια of Dioscorides, designate its root, which is perfectly solid, and even at the present season (December), when the plant is young, very commonly penetrates twelve or fifteen inches into the soil. Of the poisonous umbelliferæ, our *Cicuta virosa*, or water-hemlock, comes nearer the ancient description than any other; and in reference to the use alleged to have been made of the ancient Κωνειον, it has the farther advantage of being generally considered

much more active poison than the common hemlock.

It may be right to add, however, that the *Conium maculatum* of modern botanists has been ascertained by Dr. Sibthorpe to grow abundantly in different parts of Greece. This eminent authority states he found it "on rubbish-heaps near Constantinople; not unfrequently in the Peloponesus; and most abundantly between Athens and Megara." It would have been very extraordinary if this species had not been a common plant in Greece, considering that it is abundant in every country in Europe. But I do not see how such a circumstance should be considered any proof that the ancient Κωνειον was our spotted hemlock, although some authors seem to look upon it as ample evidence of their identity*. It is not unworthy of remark, that the ancient term has been apparently lost in the modern Greek language, and that it bears no relation whatever to the modern name βρομοχοςτον, now applied, according to Sibthorpe, to the spotted hemlock.

The ancient accounts of the properties of Κωνειον as a poison, harmonize better than their botanical descriptions with what is known of the modern *Conium*. The fullest account is that of Nicander, in his Αλεξιφαρμακα; and subsequent writers have either followed him, or, where they have deviated, seem to have had in their eye the supposed properties of the Athenian state-poison. "Behold also," says he, "the baneful draught of Κωνειον; for this potion carries destruction to the powers of the mind (*literally*, to the head), bringing shady darkness; and makes the eyes roll. But staggering on their footsteps, and tripping on the streets, they creep on their hands. And mortal stifling seizes the upper part of the neck, and obstructs the narrow passage of the throat. The extremities grow cold; the strong vessels in the limbs contract; he ceases to draw in the thin air, like one fainting; and the soul visits Pluto." The Greek Κωνειον, according to this poetical version, rendered into brief prose, brings on obliteration of the mental faculties, dimness of sight, giddiness, staggering, stifling, coldness of the limbs, and death by asphyxia;—a view of its effects which differs little from the modern notions of the poisonous action of the spotted hemlock. But the poetical effusion of Nicander will apply equally well to many narcotics, and among others to various umbelliferous plants: it is a generic, though probably intended for a specific, description.

Nicander, who appears to have lived about 160 years before Christ, or, according to some, a century later, has evidently been followed by Diascorides, Pliny, and other subsequent authors, in his description; and where any deviation is observable, it has been in favour of Plato's account of the effects of the Athenian state-poison in the case of Socrates—this being either tacitly or expressly assumed to have been a preparation of Κωνειον. It seems needless, therefore, to prosecute the present branch of the inquiry by reference to other ancient narratives.

The result at which we must arrive is, that the Greek Κωνειον, so far as regards its effects, *may* be the modern *Conium maculatum*, but may be equally referred to various other plants; and that, if its botanical description by classical authors is to be allowed any weight at all, or, which amounts to the same thing, if we admit that the ancient naturalists did describe, and could describe, from nature, it must have been a totally different vegetable.

Turning, in the last place, to the Athenian state-poison, we find both historians and political authors who lived during the time it was in frequent use, assuming very much as a matter of course that this was the Greek Κωνειον; and subsequent writers identify it either with this plant, or with the Roman *cicuta*, which we have already seen to be the same with the Κωνειον.

Thus Xenophon, who died forty years after Socrates, and during whose lifetime the state-poison was the constant instrument of medical murder, speaking of the death of Theramenes, condemned for his political acts by the thirty tyrants, says, "and when he was condemned to die, and was drinking the Κωνειον, it is said he tossed away what remained, exclaiming, &c. In like manner the orator Lysias observes, in his oration against Eratosthenes, who had put his brother Polemarchus to death: "The thirty despatched to Polemarchus their customary order to drink Κωνειον." About the middle of the second century of the christian era, we find Diogenes Laertius following these authorities, when he mentions the death of Socrates. "Socrates imprisoned," observes he, "after a few days drank the Κωνειον, discoursing many beautiful and good things, which Plato has given in his Phædo." The same assumption is made by Pliny betwixt six and seven centuries later. "The *cicuta*," says he, "is a poison, abhorred because the instrument of public punishment among the Athenians, yet applicable to many purposes which are not to be omitted."

It is, nevertheless, not a little singular,

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* Mérat et Delens, Dict. de Matière Méd. ii. 385.

that no mention is made of the Κωνειον as the state-poison of the Athenians by an author in natural history, who flourished at a time when the memory of the death of Socrates, Phocion, and many other eminent individuals, must have been fresh in the minds of all philosophers, and who nevertheless mentions both the plant and its poisonous qualies,—I mean Theophrastus. Theophrastus was born but twenty-eight years after the death of Socrates, namely, 371 years before Christ, and was Aristotle's successor in the Lyceum; yet he is altogether silent on the point. Every commentator has adduced the following remarkable passage from this author. "Thrasyas, the Mantinean, said, that by making use of the juices of the Κωνειον, the poppy, and such other things, he had discovered a substance which occasioned death easily and without pain, and so portable and minute, that the weight of a drachm was sufficient, and absolutely without a remedy, and capable of being preserved any length of time without alteration." It has been supposed by some that Theophrastus has here described the state-poison of the Athenians, but there is no evidence to this effect; and his silence on the point would rather tend to shew that the state-poison was a different substance.

Leaving these vague inquiries, however, let us see what has been said of the effects of the Athenian poison in those who were put to death with it; and we may then be able to settle, independently of either the assumptions or omissions of classic authors, whether it was the *κωνειον* of the Greek physicians or the *conium* of the moderns, or what else it may have been.

So far as I am aware, there is but one account extant of the effects of the Athenian state poison, but it is clear and precise. I allude to the familiar and pathetic narrative by Plato of the last hours of Socrates. Having first stated that the executioner told the philosopher that nothing could spared from the dose for a libation to the Gods, and that he was to walk about till he should feel his legs becoming heavy,—Plato goes on to say that Socrates drained the cup with tranquillity, upbraided his friends for their weakness when they burst into tears, and proceeded to walk as he had been directed. "At length," continues the narrative, "when he felt his limbs grow heavy, he lay down on his back; for so the man had told him to do. And at the same time the person who administered the poison went up to him, and examined for a little while his feet and legs, and then squeezing his foot strongly, asked whether he felt him do so? Socrates replied that he did not. After this, the man did the same to his legs, and proceeding upwards in this way showed us that he was cold and stiff. And he approached him and said to us, that when the effects of the poison should reach the heart, Socrates would depart. And now the parts about the lower belly were cold, when he uncovered himself (for he was covered up), and said, which were his last words: 'Crito, we owe Æsculapius a cock; pay the debt, and do not forget it.' 'It shall be done,' replied Crito; 'but consider whether you have any thing else to say.' Socrates answered not, but in a short time was convulsed. The man then uncovered him. His eyes were fixed; and when Crito observed this, he closed his eyelids and his mouth.

If this narrative be altered to a modern toxicological description, it is plain that the Athenian state-poison must be regarded as producing spasm and coldness of the limbs, gradually advancing to the internal parts, causing death eventually by acting either on the heart or respiration, and without affecting the functions of the mind even to the very last.

Such a view of its action is altogether at variance equally with the effects usually ascribed in recent times to the spotted hemlock, and with the phenomena presented in the experiments described in the present paper. It seems also not less at variance with the ideas entertained by the Greeks of the poisonous operation of their *κωνειον*, as will be apparent on comparing Plato's narrative with the general description of Nicander. And lastly, it seems to me incompatible with the ascertained effects of every poison whatsoever, which is known in modern times; for I think it will puzzle the most learned toxicologist to point out any poison which has the property of occasioning coldness and stiffness of the limbs, proceeding gradually upwards, and proving fatal without causing either pain or sopor.

There seems, then, no alternative but to conclude, either that the description of Plato—who, it must be remarked, was not present at the death of Socrates, as many imagine—is not a detail of facts, but an embellished narrative, written for effect; or that, although we are now acquainted probably with fifty times as many poisons as the ancient Athenians, and with many which are fifty times as active as any in their list, we have lost acquaintance with one with which the ancients were quite familiar, and which differs totally from every known poison in its action.*

* We have been obliged, for want of space, to omit several of the author's learned notes (chiefly corroborative of statements in the text), as well as the whole of his Appendix of select experiments.—Ed. Gaz.

ANEURISM BY ANASTOMOSIS;

With Operation and Remarks.

By John Russell, Esq.

Assistant-Surgeon to the 73rd Regiment.

To the Editor of the Medical Gazette.

Sir,

If you think the enclosed case of aneurism by anastomosis, from my note-book, worthy of a place in the Gazette, I will thank you to insert it.

Yours very truly,

John Russell.

7, Duke-street, Adelphi,
April 20, 1836.

In October, 1829, at Hobart Town, Mary Trotter, æt. 41, a laundress, applied to me with the following complaint: — She had two tumors, each about the size of a walnut, one at the extremity of the ring, the other of the little, finger of the left hand, extending along each finger to the middle, of a violet colour, spongy feel, and of a structure resembling a placenta. They shrunk under pressure, but recovered their size on its being removed; throbbed strongly, as did all the vessels of the arm; were excessively painful; and the whole frame was irritable. The radial and ulnar arteries were enlarged; the latter *tortuous;* the basilic vein had assumed the appearance so commonly seen in a varicose vein of the leg.

She stated that the disease had commenced *five* years before, on the tip of the ring finger, just under the nail, by a bleeding, without any previous symptom, while engaged in wringing clothes. At first, she observed a little speck, which ulcerated, cicatrized, and then gradually formed a little violet-coloured pulpy tumor, bleeding frequently, and sometimes freely. In *three* years more, a similar tumor appeared on the little finger of the same hand. The bleeding and inconvenience increased much. She applied twelve months before I saw her to a practitioner in the country, who put ligatures *round the fingers*, and cold astringent lotions, to restrain the hæmorrhage, which they had the effect of doing, but from *this time* she suffered excruciating pain: the menses were not affected by the hæmorrhage, but they have since ceased.

I recommended removal of the fingers at the metacarpal joints. She declined it; went about seeking other advice: some surgeons told her she must lose her arm; she returned to the country. In December following, she came back to me, and said she would submit to any thing, but the disease had now extended itself so far as to form *one* aneurismal tumor at the junction of the two fingers; the placenta-like appearance reached to the wrist; the arm was of an erythematous hue, to the elbow; the tumors had ulcerated and sloughed; and the carious phalanges protruded from the gangrenous fingers, which were enlarged and dreadfully painful; the little finger bent at right angles with the palm. The *pulsation* and *size* of the arteries and veins had considerably increased, even up to the *axilla*. The pain was aggravated by a depending position, by any mental emotion, and even by the act of respiration. Her constitution was fast sinking.

The case was seen by Dr. Macleod, Deputy Inspector-General of Hospitals, who agreed with me in the propriety of the operation I suggested. I wished to remove the disease, but to go as close to it as possible, in order to save a valuable portion of the hand; guided by what I believe may be considered a valuable principle in surgery—viz. if a disease not of a malignant nature be removed by the knife, its consequences will generally be subdued, or the parts secondarily affected will be restored to their natural condition. I therefore first tied the ulnar artery at the wrist, and then amputated the metacarpal bones of the ring and little finger, at the carpus, quickly and easily, being obliged to cut within the verge of the purple mass. Colonial Surgeon Scott, Mr. Bedford, and several other surgeons, were present.

To give some idea of the enlargement of the vessels leading to the diseased part, I may here mention, that while cutting on the ulnar artery, a superficial branch was divided, when I heard one of the gentlemen present say, "the ulnar is cut." It certainly spouted out as forcibly as that vessel might do under ordinary circumstances, and rendered it no very easy task to tie it. However, the ligature on it saved trouble afterwards, as it was only necessary to tie two small vessels.

The stump healed well. She was discharged on the 22d January, 1830.

In three years afterwards she called to thank me. All the morbid affections had long subsided, the vessels of the arm had resumed their natural appearance, and, with the assistance of the thumb and two fingers, she was enabled to follow her occupation of a laundress, scarcely missing the part removed.

This case, I believe, is unusual, as occurring in a person of advanced life, in a peculiar manner, presenting two similar tumors on the same hand. It is instructive, as, while it shews the efficacy of excision, as the only certain means of removing this disease, it illustrates Mr. Wardrop's observation, that a ligature on the artery leading to it may render that operation, otherwise impracticable, safe, although in this instance I applied one for a different purpose—viz. to enable me to shave the disease close. It shews the injurious consequence of a tight bandage around the member; and, lastly, that the secondary affections of surrounding parts are not to be dreaded.

THE PHOSPHATES IN URINE,

NOT HELD IN SOLUTION BY MURIATE OF AMMONIA.

To the Editor of the Medical Gazette.

Sir,

In replying to the communication contained in your journal of last week, I shall confine my remarks exclusively to the questions of how far, and under what circumstances, muriate of ammonia is to be looked upon as a solvent of phosphate of lime, or the mixed phosphates; what change, if any, the ammoniacal salt undergoes by mere heat; and lastly, why I adhere to the opinion that urine, under no conditions, as far as I have yet examined, undergoes by the effect of boiling a change capable of rendering it more acid; and I do this because neither facts nor arguments have been as yet brought forward, at all invalidating the accuracy of those experiments lately published, in which I have, I conceive, clearly shewn that the evolution of carbonic acid, in certain specimens of urine, and the deposition of the phosphatic salts, stand to each other in the relation of cause and effect.

In the first place your correspondent objects to that experiment in which I proved that a solution of muriate of ammonia, by boiling, does not evolve any thing capable of reddening turmeric paper, and insists upon the superior delicacy of litmus paper, previously reddened by a weak acid, as a test for alkalies. My own experiments have certainly not induced me to hold the reddened litmus in higher estimation than turmeric paper; besides, when litmus paper is reddened with a weak acid, such as the diluted acetic, frequently used for that purpose, it becomes open to an important objection, for the acid being volatile, it is easily driven off in all those experiments in which heat is necessarily employed as an agent. For example, in the case where the litmus paper thus reddened is suspended over a boiling fluid, such as the urine, the heat speedily volatilizes the acid, and the blue colour is, of course, restored to the paper, no alkali at all being set free. If reddened litmus paper be employed at all, it ought not to be reddened by a volatile, but by a very diluted fixed acid, such as the sulphuric or phosphoric acids. The muriate of ammonia employed in my experiments, was prepared by evaporating a mixture of muriatic acid and carbonate of ammonia, the latter being in excess, to dryness; the salt obtained is an acid salt; this is always the case, whether it be obtained by crystallization from its solution in water, or whether it be obtained by sublimation. If, then, a portion of reddened litmus paper be suspended over a boiling solution of muriate of ammonia, as prepared above, I maintain that the colour is not restored, neither is turmeric paper reddened; in fact, the vapour given off actually reddens blue litmus paper, when brisk ebullition is employed, as we might expect from the circumstance of the acid ammoniacal salt being carried up diffused through the aqueous vapor. If, however, we add a solution of ammonia to muriatic acid, in such proportions that the resulting fluid shall be neutral, then the application of heat will cause ammonia to be evolved, as shewn by the effect produced both on turmeric and reddened litmus paper; the fluid will also be found afterwards to have an acid re-action; in fact, that portion of ammonia not chemically combined with muriatic acid, and existing in the fluid merely in a state of admixture, is evolved, whilst the remaining portion is

chemically united to the muriatic acid, forming muriate of ammonia. Perhaps it is this circumstance which has led your correspondent to conclude that muriate of ammonia is capable of being decomposed by a boiling temperature, whereas it is clear that only the uncombined ammonia is evolved.

2dly. He invites me to repeat his experiments, as published in the Hospital Reports, in order to shew that the phosphatic salts can be precipitated by mere boiling, from a solution of muriate of ammonia, which solution contains a *notable portion* of free muriatic acid. It is exceedingly difficult to conceive the possibility of an earthy phosphate being precipitated by boiling, from a solution containing free muriatic acid; and still more difficult to understand how free ammonia can be evolved from such a solution, when we reflect, on the one hand, on the powerful solvent action which muriatic acid exerts over the earthy phosphates, and on the strong affinity which the same acid has for ammonia, on the other. Nevertheless, such is asserted to be the case. The only way, therefore, to determine the accuracy of this statement, apart from mere reasoning, which certainly is opposed to it, is by having recourse to direct experiment.

Exp. 1. Some phosphate of lime, recently precipitated and washed, was dissolved in diluted muriatic acid; to the solution ammonia was added, to throw down the phosphatic salt; diluted muriatic acid was then added, in sufficient quantity to render the fluid slightly acid, but still not in sufficient quantity to dissolve all the precipitated phosphate of lime; the whole was then filtered. The clear filtered fluid did not become turbid on boiling, neither did it evolve ammonia. Oxalate of ammonia, when added to it, caused a copious precipitate.

It is clear from this experiment, that if any muriatic acid existed, over and above that necessary for the formation of muriate of ammonia, it must have been in exceedingly small quantity; because sufficient was not added to dissolve all the phosphate of lime, and still this fluid was not rendered turbid by boiling; clearly confirming the position I before maintained—viz. that the earthy phosphate is not thrown down from its solution in muriate of ammonia, when any *notable* portion of free muriatic acid is present.

2. Another portion of phosphate of lime was precipitated from its muriatic solution, in the same way, by ammonia; but, in this case, only sufficient muriatic acid was afterwards added to render the fluid neutral; a considerable portion of phosphate of lime remained, by this means, undissolved: the whole was then filtered by boiling; the filtered fluid became turbid, and ammonia was evolved, the fluid becoming acid in its reaction. This experiment also demonstrates the truth of my former statement — viz. that it is only under *certain conditions* that the phosphatic salt is thrown down, by boiling, from its solution in muriate of ammonia, the condition being in this case that the fluid should be *neutral*, or at least not acid.

3. A portion of phosphate of lime was digested for some time in a cold saturated solution of muriate of ammonia; the whole was then filtered. The filtered fluid was acid, did not become turbid by boiling, neither did it evolve ammonia. Oxalate of ammonia caused a copious precipitate to fall; caustic ammonia and heat also produced a turbidity. This experiment confirms the truth of a former statement—viz. that the phosphatic salt was not thrown down from its solution in muriate of ammonia by boiling, when the ammoniacal salt was in excess; it is also directly confirmatory of the affirmation, that neutrality of the fluid, or at least a non-acid condition, is essential to the development of the phenomenon of the phosphatic deposition by boiling.

4. A portion of phosphate of lime in excess was digested in a weak solution of muriate of ammonia. The filtered fluid was acid, did not become turbid by heat, nor did it evolve ammonia, but was rendered turbid both by oxalate of ammonia and caustic ammonia, and heat. This experiment, then, not only confirms the preceding, indicating a necessity for a non-acid condition of the fluid, in order to admit of the precipitation of the phosphate, but also shows that phosphate of lime is not thrown down, even from a diluted solution of muriate of ammonia, by mere heat. Oxalate of ammonia was used in this experiment, to prove the existence of lime in the different solutions; caustic ammonia was employed in just sufficient quantity to render the fluids neutral.

To conclude, your correspondent "is at a loss to imagine how I could have deceived myself into the belief that the acidity of urine, affording a precipitate of phosphates by heat, is never increased by boiling." To this I reply, that my belief rests entirely on experiment; which, having been repeated sufficiently often, and with all possible caution, convinces me of the truth of such an assertion. Indeed, if the idea of superior acidity rested only upon the supposition that muriate of ammonia was decomposed, no experiment would have been necessary, previous investigations having quite satisfied me that the salt in question does not suffer decomposition at a boiling heat, or even at a temperature equal to its sublimation; but as other causes might have acted in effecting this change in the urine, I deemed it right to institute those experiments with tincture of litmus and ammonia already detailed in a previous number of your journal.

By giving insertion to these remarks, you will oblige,

Your obedient servant,
R. H. Brett, M.R.C.S.

Upper Sussex-street,
Old Kent Road, April 25, 1836.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue à abréger."—D'Alembert.

The English Flora of Sir James E. Smith. Vol. V. Part 2, comprising the Fungi. By the Rev. Miles J. Berkeley, M.A., F.L.S. 8vo.

The Principles of Descriptive and Physiological Botany. By the Rev. J. S. Henslow, M.A., F.L.S., &c., Professor of Botany in the University of Cambridge. 1 vol. 12mo.

A Compendium of the English Flora of Sir James E. Smith. Second Edition, with Additions and Corrections. By Dr. Hooker. 1 vol. 12mo.

We have long eagerly desired to see the concluding volume of Smith's English Flora, conscious how much such a work was needed, not only to embody the new species which had been discovered since the publication of Sowerby, and of Paxton's Flora of the Midland Counties of England, but that the whole might be arranged in accordance with the more accurate principles of classification developed by Fries, Nees von Esenbeck, and other continental botanists. To find in Britain one who had devoted sufficient attention to the subject to be competent to so difficult a task, is a circumstance upon which we may congratulate ourselves; for with the exception of Drs. Hooker and Greville, no British botanist has appeared to take any interest in the study of this intricate tribe of vegetables. That Dr. Hooker should have confided the preparation of this volume to the Rev. M. Berkeley was proof sufficient that he deemed him equal to the arduous duty; and the manner in which it is executed justifies his selection. With such a volume to consult, less excuse will exist for the neglect of this most singular and important tribe.

It is less our intention here to criticize the book (which, from its nature, does not admit of analysis, but only allows an opinion of it to be expressed), than to point out the reasons why medical men should bestow some attention on the productions of which it treats, since it will furnish them with a most valuable guide in their studies. Our surprise is great that so complete and accurate a work could be prepared in the time which it has occupied, especially by a person having other duties to engage him—considering how many intricate points required to be investigated and determined—so many volumes to be consulted, and so many references and citations to be made. We have compared most of the references to the plates of Bulliard, and Greville's Scottish Cryptogamic Flora, and found them extremely correct; indeed, we have noted but one inaccuracy—the reference, p. 12, genus Agaricus, sp. 20, A. melleus, to Bulliard, t. 370, should be t. 377. If any thing be wanting to render the work perfect, it is an index of the synonymes, which, though it would be a task of great labour to accomplish, would be eminently useful.

As instruction in botany now forms a part of the curriculum of medical education in England, we trust that the investigation of the habits and uses of fungi will be less neglected in future than it

has been hitherto. Indeed, it is a positive duty on the part of every medical man who wishes to render himself competent to the discharge of his professional responsibilities, by preparing himself for every emergency that may occur. How many accidents annually happen throughout Britain from the use of poisonous fungi, cautious as the people are of eating them! But independent of considerations which are of a practical nature, or have reference to medical jurisprudence, we are prepared to shew that in a physiological point of view they merit attention. We do not allude to such questions, as whether fungi may not be adduced as an example of equivocal generation, though we hold that they are no more proofs of such than a tree or a horse is, but rather wish to point out some of the circumstances which influence their development, structure, and properties. Any one who has examined the beautiful plates of Dr. Greville's Scottish Cryptogamic Flora, must have observed that every genus has a definite locality for, and peculiar arrangement of, its reproductive particles. In fact, each genus has as fixed a character in respect to the reproductive organs, as any of the more highly organized vegetables, such as a rose or a pear-tree. The sporidia, or reproductive particles of fungi, are, however, far more numerous than the seeds of any flowering plant, while, possibly, they can retain a power of development as long: being exceedingly small, in most cases they escape the observation of the common eye, and being wafted by the wind, they are conveyed to almost every spot where any organized matter exists, whether it be living or dead. That they do not develop themselves on every spot where they alight, even though there be the proper pabulum for their growth, is precisely one of those circumstances in their history which invites the attention of every physiologist. Fungi are eminently meteoric, or are developed only under certain atmospheric conditions; they furnish, therefore, criteria of alterations in the air, of very great importance. Almost every person knows that the common mushrooms are more abundant in some seasons than others; and it is stated in Sowerby's Fungi, when speaking of some species found in Epping or Hainault Forest, that occasionally twenty years may elapse between the periods when it is to be found, and then it is discovered near the same spot as before. The inference from this is, in our view, that the sporidia were there during the whole interval, but were dormant, not being called into action till a recurrence of the same atmospheric state.

In a former paper (Review of Watson's Geography of British Plants, Med. Gazette, Feb. 27, 1836) we quoted from a Memoir on Medical Topography, in which it is stated that "an unusual growth of fungi has preceded the most destructive scourges of mankind." After violent commotions of the atmosphere, also, not only are they frequently very abundant, but then new or rare species may be met with,—witness *Agaricus polystictus*, found by Mr. Berkeley after a fortnight's very stormy weather (op. cit. p. 9.)

The geographical distribution of some fungi is very extensive: we learn from Sir W. Jones that the Boletus igniarius occurs in India, and is applied to similar uses as in Europe; and Mr. Tytler, in his remarks on the climate of Mullye, at the foot of the mountains of Nepaul (Trans. of Medical and Physical Society of Calcutta, vol. iv. p. 372) says, "The last thing I have to mention may serve to illustrate the nature of the climate. Small mushrooms grow in every corner that is the least neglected, even in the most frequented rooms: left to themselves they would attain the height of about two inches, with a top rather larger than a shilling; but they are generally discovered and brushed away before they reach maturity." We have no doubt but that this is the same as the Agaricus domesticus (Bolton, t. 26), which appears in our own country under similar circumstances, or, as Fries says, "*Jove pluvio.*"

A great and interesting peculiarity of fungi, is, that apparently the same species is wholesome or poisonous, according to the country, locality, or season, in which it grows. The peasantry of Russia, and also a portion of that of Germany, Switzerland, and Savoy, live on fungi during a great portion of the year. Some, which in other countries are deemed poisonous, are by them eagerly collected and preserved for future use. It has been thought that in these climates their poisonous qualities were not so fully developed, or that the salting and vinegar, or the application of heat in cooking, deprived them of

their noxious properties. It is probable, however, that these people observe great discrimination, not only in collecting the proper sort, but in ascertaining that they are in a proper state. It may be asserted that scarcely any fungus is decidedly poisonous when in a young state, but almost all, even the *Agaricus campestris*, become so when hastening to decay.

A principle similar to, if not identical with, hydrocyanic acid (many have a smell of prussic acid, *Ag. cerasinus*, &c.) is formed in them when old, which is one source of danger (and for this the best antidote is about 20 minims of caustic ammonia in gruel—see Wolff, in Rust's Magazine, vol. xxxvi.). Many, however, are acrid, and excite inflammation of the coats of the stomach, (which requires venesection,) as well as possess a narcotic power. Most of those with a milky juice are acrid; but many lose their acridity by the application of heat: such as *Agaricus piperatus*, Scop.; or when preserved with salt and vinegar, such as *Agaricus torminosus* (Schaeff). Those which grow in open pastures are much safer than those found in woods; a fact known to the ancients.

> —— Pratensibus optima fungis
> Natura est: aliis male creditur.
> HOR. SAT. Lib. ii. Sat. iv. l. 20.

That the poor of our own country, from their ignorance respecting natural productions generally, and fungi especially, lose a nourishing article of food, and even a luxury, is easily shown. Not fewer than 26 different species of fungi, growing in Britain, are fit for food; yet, if we except about three species, none are ever brought to market, or preserved for their own use. The nourishing power of fungi is not only demonstrated by the usages of the Russian and German peasantry, who, though we courteously designate them *boors*, as the Romans called all foreigners *barbari*, certainly surpass us in their observation of the qualities of natural objects, and the profitable uses to which they may be applied. Chemical analysis exhibits their approximation to animal matter, and in many, examined by Vauquelin, osmazome was found. But there is no hope of this fruitful field being turned to a beneficial account by our peasantry, unless medical men and clergymen, located in every part of the country, first become acquainted with the wholesome species. By way of facilitating the acquisition of a knowledge of this subject, Mr. Berkeley has commenced the publication of Dried Specimens of British Fungi, described in the volume now noticed, to be continued in half-yearly fasciculi.

It is the peculiar privilege of the rising generation of British botanists, to have elementary works on the science prepared for them by individuals eminent in their rank as naturalists. The meagre works which were put into the hands of students in former days, have been dispossessed of their place in the library of the tyro, by the more scientific Introduction of Dr. Lindley; and now, in smaller compass, but equally philosophical in its arrangement and matter, the volume from the pen of Professor Henslow will form a manual calculated to diffuse a knowledge of botany on sound principles. While it is extremely concise, it is remarkably clear: no branch of the subject has been omitted, yet each is intelligibly treated—some, indeed, more so than in any work we have seen: the doctrine of the spiral arrangement of leaves is elucidated in a more perspicuous manner than in the original work of Braun, Martin's, or Alph. Decandolle; and as it is the most important discovery in vegetable physics which late years have made known, Professor Henslow's explanation of it is extremely valuable. The index is made to serve the purpose of a glossary, which is a great convenience and saving of time. Hitherto, if any introductions to botany were cheap, they were at the same time bad, being the productions of hacks and journeymen in the science. But in this instance, cheapness and excellence are combined.

The peculiarities of the new edition of Smith's Compendium, by Dr. Hooker, are, that it embodies the most recent discoveries of new species, even some made in the course of last year; and not only refers each genus to its place in the system of Jussieu, but points out the groups that are natural, and furnishes short notices occasionally, of the general habits and qualities of the more extensive natural orders. This will tend to make known to those who have hitherto used only the artificial system, the superior merits of the natural, and gradually lead to its more general adoption, as the only one worthy of permanent study and attention.

MEDICAL GAZETTE.

Saturday, April 30, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri: potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

MEETINGS IN THE COUNTIES,

TO REFORM THE PRESENT POOR-LAW.

APATHETIC and indifferent as the members of our profession generally are, in matters relating to their common advantage, it is satisfactory to observe the stir which is now taking place amongst them—roused and goaded, we should say, into activity by the iniquitous burdens attempted to be imposed upon them. For this they are indebted to the vile new Poor-law—that measure so universally reprobated, but which, in this instance, we are persuaded has worked beneficially. There is no evil pure and unmixed; and, no thanks to our legislators, the new enactment, by pressing with intolerable severity on the already overburdened practitioners who minister to the medical wants of the poorer classes of the community, has done this good,—it has drawn the members of the profession, throughout the country, more closely together, and promises to effect a firm bond of union amongst them, which would otherwise, perhaps, not be thought of.

The practitioners of the counties of Warwick and Worcester, it will be seen by our journal of this day, have had their meetings, and adopted measures which we trust will be followed up with energy. The deputations ought, in every case, to be most cautiously selected; men of high ability, weight, and influence, but, above all, conspicuous for their firmness and active zeal in the cause, should compose those important bodies appointed to deal with the Minister. Members of Parliament, truly *honourable* men, should by all means be secured as supporters, both in and out of the House. But we need scarcely proceed with our suggestions; other meetings, and associations to be formed in other counties, cannot do better than imitate the example so ably set before them, particularly by the practitioners of Buckinghamshire.

We were glad to find that both at the Worcester and Warwick meetings the conduct of the Buckingham memorialists was duly appreciated. The good effect and example of the numerous signatures appended to the remonstrance of the latter county, we feel confident will not be suffered to be lost. It was this document, supported as it was by a most efficient deputation, that first procured a hearing for the grievances borne by the mass of the practitioners of England: until Buckinghamshire moved in this effectual manner, the functionaries of the Poor-Law Commission had it all their own way; the cry of the profession was cushioned and nearly stifled.

Very far, however, are we from being sanguine as to the results, should the zeal of the remonstrants in any quarter become relaxed. The measures already adopted by the midland counties must be not only imitated extensively throughout the country at large, but pushed by the prime movers till the main object be fully accomplished. The officials of the existing law, we observe, pursue their system as before, unaltered: advertisements for *tenders* are inserted daily in the newspapers, nor can we see any thing in their offensive form calculated to impress us with the idea that correction has yet reached the executive in any of the districts.

A very powerful effect, no doubt, will result from the grand aggregate meeting of the profession, which it is intended shall take place at Manchester in the autumn. But we fear the date is too distant to reap all the benefit that might be expected to result from so important a

step. Parliament will have been prorogued, or wearied out with other business by that time, and any influence to be exerted in that quarter can only be efficient in the subsequent session. At a much earlier date the provincial associations will have met, and we trust so valuable an opportunity of evincing the interest taken in this subject by all the distinguished practitioners of the provinces, will not be suffered to escape. Meantime, let the work of co-operation in the separate counties go vigorously forward: nothing can be gained without a display of feeling. Petitions, memorials, remonstrances, and deputations, should be employed to state the just complaints of the profession, both to Parliament and at the Home Office. Without this, and unless it be promptly done, the fruits of all the late laudable proceedings on the part of the friends of the profession, will have perished, and the cause of justice and humanity may be despaired of.

MEDICAL EVIDENCE ON A TRIAL FOR MANSLAUGHTER.

In another part of the present number will be found a report of an interesting trial, at which much medical evidence was adduced. Two Professors of the Edinburgh School were summoned to give their testimony on the occasion, but, as will be seen, there was so much apparent contradiction in the opinions elicited from those learned persons, that they perfectly neutralized each other: at least such was the impression of the judge who tried the case, and left it ultimately to the plain common sense of the jury. The cause of this disagreeable occurrence (for such we must account it, where high medical authorities appeared before the public giving opinions of so contrary a nature), may, we think, be traced to the fact, that one of the parties in question was summoned on behalf of the prisoner, and the prisoner's counsel good took care to keep him to the abstract point—whether such and such fractures might not have resulted from falls, independently of injuries actually inflicted. The decision of the jury was right. The moral and circumstantial evidence was complete. The blows inflicted with the poker were not denied, and whether they left ecchymoses or not, it would be quite too large a draught on our faith to suppose that the fractures which were produced, anomalous as they were allowed to be on the supposition most favourable to the prisoner, were after all not owing to the application of the heavy instrument used, but the mere result of accident.

COLLEGE OF PHYSICIANS.

At the *conversazione* on Monday evening last, when Dr. Turner presided, a very interesting paper, by Dr. Mower, was read, on the subject of the habits and peculiarities of the seamen of various nations, as evinced by their conduct while under treatment on board the hospital ship, the Dreadnought. The author being visiting physician to that establishment, has had ample opportunity of witnessing the facts which he describes. We shall publish the paper next week.

UNIVERSITY OF BERLIN.

MEDICAL ARRANGEMENTS.

Many readers, we doubt not, will be glad to know the order of the courses pursued by the medical faculty, at Berlin. The following are the arrangements for the summer semester, only begun on Monday last, the 25th inst.

Ordinary Professors.

Dr. John Mueller, Dean, will lecture *publicly** on Saturdays, from 9 to

* It is well known, that in the German Universities, the *public* courses are little more than mere matter of form; the *private* constituting the main business of the Professors, from which, in fact, they derive their chief emolument.

10, on the physiology of generation. The *private* course will comprehend, 1. special human physiology, illustrated by experiments and demonstrations on animals: time, five days in the week, from 9 to 10; 2. comparative anatomy, Monday, Tuesday, Thursday, and Friday, from 8 to 9; 3. pathological anatomy, Mondays, Wednesdays, and Saturdays, from 6 to 7, P.M.

Dr. E. D. A. Bartels, publicly, on the aphorisms of Hippocrates, Thursday, from 4 to 5. Privately, his medical clinique, in La Charité, from 11 to 1, daily.

Dr. W. H. Busch, publicly, on the diseases of the female organs, Wednesdays, at 4. Privately, his obstetric clinique in the University Lying-in Hospital, Mondays, Tuesdays, Thursdays, and Fridays, at 4. *Privatissime*, he gives instructions in practical midwifery.

Dr. C. F. von Graefe, on surgery, Mondays, Tuesdays, Thursdays, and Fridays, at 3. On clinical and eye surgery at the University Hospital, from 2 to 3, as usual.

Dr. J. F. C. Hecker, publicly, on the encyclopædia and methodology, Wednesday and Saturday, at 1. Privately, on the modern history of medicine, Monday and Thursday, at 4: historical pathology, Tuesday and Friday, at 4: and on special therapeutics, every day, from 9 to 10.

Dr. J. Horkel, privately, on general physiology, daily, from 1 to 2.

Dr. E. Horn, publicly, pathology, with general and special therapeutics, Wednesday and Saturday, at 8. Privately, special pathology, Monday, Tuesday, Thursday and Friday, at 8.

Dr. C. W. Hufeland, privately, practical medicine in the University Policlinial Hospital, 1 to 2 daily, as his health may permit.

Dr. Fr. Hufeland, publicly, on pathogeny, Wednesday and Saturday, at 9. Privately, on Semiotics, Tuesday, Thursday, and Friday, at 10: and on special therapeutics, the elementary part, daily, at 1.

Dr. J. C. Juengken, publicly, on the diseases of the organs of hearing, Thursday and Friday, at 4. Privately, on general and special surgery, Monday, Tuesday, Wednesday, and Saturday, at 4: on aciurgy, or the practice of surgical operations, with Dr. Kluge, daily, from 6 to 8, A.M. Demonstrations on the dead body, daily, from 6 to 8 in the evening. Eye clinique, 5 days in the week, at 9.

Dr. H. F. Link, publicly, on the medicinal and poisonous properties of vegetables generally; Saturdays, at 8, with botanical excursions in the afternoon. Privately, on botany, theoretical and practical, with demonstrations, daily, from 7 to 8. On natural history, from 8 to 9, on five days in the week.

Dr. H. Osann, publicly, on the medicinal waters of Germany, Wednesday and Saturday, at 9. Privately, practice of medicine in the Royal Polyclinic of the University, at 1 daily. On materia medica, after Hufeland's method, daily, from 5 to 6.

Dr. J. N. Rust, publicly, on some parts of surgery, 12 to 1, daily. Privately, the clinique in La Charité, from 10 to 11½ as usual.

Dr. F. Schlemm, publicly, on the organs of the senses, Mondays and Tuesdays, at 11. Privately, on osteology, Monday, Tuesday, and Thursday, at 12; and on surgical anatomy, the first five days of the week, at 7 A.M.

Dr. C. H. Schultz, publicly, on general physiology and pathology, Saturdays, at 8. Privately, medical botany and the physiology of plants, with microscopical demonstrations and excursions, daily, at 10; on medical natural history, five days, at 7; on human physiology, with experiments on animals, five days, at 8.

Dr. W. Wagner, publicly, on medical police, Wednesdays and Saturdays, at 7 A.M. Privately, general pathology and therapeutics, Mondays, Tuesdays, Thursdays, and Fridays, at 7 A.M.; on forensic medicine, Mondays, Tuesdays, and Thursdays, at 3; and on the practice of forensic medicine, with demonstrations, as usual, on Wednesdays and Saturdays, from 6 to 7 P.M.

Extraordinary Professors.

Dr. J. L. Casper, privately, on forensic medicine, for students of law and medicine, with practical exercises in the art of drawing up reports, consultations, &c. Tuesday, Wednesday, and Friday, at 9; on the art of prescribing, Mondays and Thursdays, at 12; with exercises on practical pharmacy, as usual.

Dr. J. F. Dieffenbach, publicly, on hernias, Saturdays, at 9. Privately, general and special surgery, five days in the week, at 9; aciurgy, time not yet fixed.

Dr. C. G. Ehrenberg, publicly, on the comparative physiology of infusoria, entozoa, and other animals not easily observed, on Saturday, from 12 to 1½.

Dr. R. Froriep, privately, general and special surgery, daily from 5 to 6 in the afternoon; on surgical anatomy, daily at 7 in the morning.

Dr. C. F. Kluge, publicly, on luxations, Monday and Tuesday, at 11. Privately, on the art of bandaging, Wednesday and Saturday, at 10; on theoretical and practical midwifery, Thursday and Friday, from 3 to 5; on acirgy, with Professor Jüngken, daily at 6 A.M.; the syphilitic clinique of La Charité, on Wednesday and Saturday, at 8; demonstrations and operations on the dead body, from 6 to 8 in the evening; obstetrical clinique in La Charité, on Thursdays and Fridays, at 5.

Dr. F. G. Kranichfeld, publicly, medical methodology, Tuesday and Thursday, at 9. Privately, on hygiène, or the preservation of health, Monday, Tuesday, Thursday, and Friday, at 5; on the special therapeutics of the human eye, with clinique and operations, daily at 3.

Dr. G. C. Reich, publicly, on diseases of growth, Saturday, at 1. Privately, pathology and special therapeutics, from 8 to 10.

Dr. L. F. Truestedt, privately, medical chirurgical practice in the ambulatory clinique belonging to the University, every day at 1.

Dr. E. Wolff, privately, clinique in La Charité, daily at 8.

Privatim Docentes.

We can only give the names and subjects of this class of lecturers; they are as follows:—

Dr. Angelstein, eye surgery; Dr. Ascherson, general surgery; Dr. Barez, diseases of children; Dr. Dann, pathology and therapeutics; Dr. E. A. Graefe, surgery; Dr. Ideler, anthropology, and diseases of the mind; Dr. Isensee, pathology, pharmacology, and pharmacy; Dr. C. G. Mitscherlich, materia medica; Dr. Nicolai, medical police, and general pathology; Dr. Oppert, syphilitic diseases, and general therapeutics; Dr. Phœbus, pathological anatomy; Dr. Reckleben, veterinary medicine; Dr. Romberg, diseases of the nerves, diagnosis, and clinical demonstrations; Dr. Troschel, helcology, surgery, diseases of the teeth; and Dr. Wilde, midwifery and obstetrical operations.

Among the professors, ordinary and extraordinary, belonging to the

Philosophical Faculty,

we may notice the following: — Dr. P. Erman, on electricity, magnetism, and meteorological atmosphærology; Dr. Kunth, on botany; Dr. Lichtenstein, ornithology and general zoology; Dr. E. Mitscherlich, experimental chemistry and zoo-chemistry; Dr. Rose, analytical chemistry and inorganic pharmacy; Dr. Weiss, crystallography and practical mineralogy; Dr. T. Hartig, entomology; Dr. Turte, physics for students of medicine and surgery; and *privatim docens*, Dr. Burmeister, on medical natural history.

LECTURES

ON

DISEASES OF THE RECTUM;

Delivered in the Theatre of St. George's Hospital,

By Sir Benjamin Brodie, Bart.

[Concluded from p. 490 of the preceding Volume.]

TREATMENT OF FISTULA IN ANO.

As I explained to you, in the last lecture, the operation for the cure of a fistulous sinus connected with the rectum has a double object. *First*, the sinus is to be laid open into the intestine, so that there may be no recess in which matter may lie and lodge. *Secondly*, the fibres of the sphincter muscle, which are implicated in the disease, and the action of which tends to prevent the healing of the sinus, are to be divided. These objects may be attained in different ways.

1. The fistula may be laid open by means of caustic. I have seen this method practised, and I have practised it myself. You introduce a probe into the external orifice, and having passed it into the gut at the upper extremity of the fistula, you bend it in such a manner as that one extremity should project at the anus. The parts, which lie over the probe, are then to be destroyed by the application of a conical piece of the caustic potash (*potassa fusa*). The caustic should be fresh made, and of the best quality; and the neighbouring parts, while the caustic continues to operate, are to be defended by washing them with vinegar, or the *liquor plumbi subacetatis*. This operation succeeds well enough in cases of small fistulæ, which are superficially situated; but in every

other case it is a most severe and painful proceeding, which I do not recommend you to adopt.

2. The *fistula* may be laid open by the pressure of a ligature.

This method has been generally resorted to by empirics, whose object it was to catch those patients who were too timid to submit to the operation by a cutting instrument. However, it has been recommended also by some experienced surgeons, and there is a paper on the subject in Desault's surgical works. Desault employed, as a ligature, a long leaden wire. By means of an apparatus especially contrived for this purpose, he introduced one extremity of the ligature at the external orifice of the fistula; then, at the upper extremity of it, he made it penetrate the gut, and afterwards brought it out again at the anus. The two extremities of the ligature were afterwards made to pass through a silver canula, and drawn tighter on it daily, in the same manner as after the operation for polypus of the uterus, and with the same intention—namely, that the parts included in the ligature should be divided by ulceration. I have performed the operation in this manner several times formerly, but not of late years, as I found it to be liable to great objections. It gave the patient, on the whole, much more pain than he would have had from a cutting instrument: only one sinus could be laid open at a time, and if there were several sinuses the cure was very tedious, because the operation was to be repeated for each of them. If any considerable portion of the sphincter muscle was included in the ligature, the pressure of it was scarcely sufficient to produce ulceration; so that it was at last necessary to finish the operation by the knife. In short, I could not find that this method had any advantages over the common method of operating, and it had many disadvantages. If you think it worth while to know more of the subject than what I have now stated, you may refer to the observations which have been published by Desault, and among which you will find a particular account of the instruments which he was accustomed to use when he operated in this manner.

3. No surgeon who has been much engaged in practice, can doubt that the best method of laying open a *fistula in ani,* is by means of a cutting instrument. In some cases, a pair of narrow, straight, probe-pointed, knife-edged scissars, will answer the intended purpose better than any thing else. Thus, if there be a fistula with the external orifice close to the verge of the anus, and not of a very large size, and terminating immediately above the sphincter muscle, you have only to introduce one blade of the scissars, such as I have described, into the fistula, and the other blade into the rectum, and then divide the intermediate parts. If the fistula has an internal orifice communicating with the gut, you should take care that this is included in the incision. The advantage of using the scissars is that the operation is attended with comparatively little pain. Unfortunately it is applicable to only a limited number of cases.

In general you will find it most expedient to lay open the fistula with a bistoury. You should be provided with, 1st, a probe; 2dly, a silver director (I say silver, because it ought to be flexible); 3dly, a common sharp-pointed bistoury, slightly curved, the edge being on the concave side; 4thly, a probe-pointed bistoury, slightly curved also (commonly called a Pott's bistoury); and 5thly, a straight probe-pointed bistoury. Some, or even all, of these instruments may be required, according to circumstances.

The patient may be placed leaning over a table, with his back to the light, or he may lie on one side, at the edge of a bed or sofa, with his thighs bent forward on the pelvis. In either position, the nates must be held apart by an assistant. The fore-finger of one hand being introduced into the rectum, you are, with the other hand, to pass the probe into the *fistula*, and then ascertain the following circumstances:—1. Whether there be already an opening into the gut, and where it is situated. 2. The extent of the fistula upwards. 3. Whether there be more than one sinus, and if so, in what direction the several sinuses extend. It is of great importance that you should have an exact knowledge on all these points, before you proceed further.

Let us suppose, first, that there is a single sinus, having an external opening near the anus, and an internal opening communicating with the rectum. It is quite necessary that the latter should be included in the incision. If the internal opening be at the upper extremity of the sinus, the operation is simple enough: you introduce the fore finger of one hand into the rectum, and with the other hand you direct the curved probe-pointed bistoury through the external opening into the sinus, and afterwards through the internal opening into the rectum; then, keeping the probe-point in contact with the fore-finger, you draw the instrument downwards, dividing all the parts below it.

If the internal opening be any where in the middle part of the sinus, you proceed in the same manner; but a second incision is then necessary, to lay open the upper extremity of the sinus. The probe-point of the bistoury must be made to penetrate

the tunics of the rectum, before this second incision is made.

If the sinus has no communication with the rectum, the tunics of the latter must be penetrated as near as possible to the upper extremity of the sinus, the incision being made afterwards in the manner which has been just explained.

This is the operation with Pott's bistoury. But there is another very convenient method of proceeding with a director and a sharp-pointed bistoury. You introduce the director into the sinus, and afterwards into the rectum, either through the internal opening, if one already exists, or by making it gradually penetrate through its tunics, if no internal opening can be discovered. Then you bend the director so as to make one extremity of it project through the anus, and divide the soft parts which lie over it, by passing the sharp pointed bistoury along its groove.

If there be several sinuses, the whole of them are to be divided in the same manner. If any one of them be left undivided, it is most probable that the operation will prove to be unsuccessful.

In many instances you will find it to be expedient to do more than merely lay open the sinuses. I have already explained that the continued action of the sphincter muscle seems to be one principal cause preventing the sinus or sinuses from healing, without an operation. The same cause will often render the cure difficult, even after the sinuses are laid open. You may get rid of this difficulty in the following manner:—After the first incision has been made, turn the edge of the bistoury in the other direction—that is, outwards—and divide the fibres of the sphincter so as to set the muscle completely at liberty. You may, if you please, do this with the bistoury which you employed in the first part of the operation, but it is more conveniently accomplished with the straight bistoury, or with one which is slightly convex on its cutting edge. The advantage of the division of the sphincter is not merely theoretical. There are few cases in which it will not greatly facilitate the ultimate cure; preventing the burrowing of matter and the formation of fresh sinuses, and rendering the subsequent dressings more easy to the surgeon, and less painful to the patient. It is, however, to the more complicated cases of fistula, that the division of the sphincter is especially applicable; as, for example, where the sinus is of unusual extent, or where there are several sinuses, or where you are not certain that you have been able to detect the whole of them, or where the neighbouring soft parts are extensively indurated. It is quite a mistake to suppose that there is any well-founded objection to even the most free division of the sphincter. It scarcely interferes with the retention of the fæces, (except they are actually liquid) even in the first instance, and the muscle never fails to become perfectly united, and to perform its functions as well as ever afterwards: nor have I ever known any hæmorrhage to arise, which was not readily commanded by a dossil of lint introduced into the wound, and the pressure of the finger continued for a short space of time. If there be any considerable bleeding vessel, it is not difficult to secure it with the tenaculum and ligature, but this is seldom necessary.

One of the most troublesome parts of the operation, in some instances, is the introduction of the probe point of the bistoury through the gut, where the fistula has no internal opening, or where that opening is not situated at its superior extremity. Mr. Savigny invented a bistoury which was intended to meet this difficulty, There was a second blade fixed to the side of the other, having a sharp point, which might be made to project by the pressure of the finger, so as at once to penetrate the soft parts wherever the opening was required, the sharp point being immediately withdrawn as soon as its purpose was accomplished. This contrivance is sometimes useful, but there is a material objection to it in many cases. The double blade increases the bulk of the bistoury, so that it is too large to be employed where the fistula is of very narrow diameter.

Some eminent French surgeons have used a sort of scoop, or gorget, made of box-wood, which was intended to be introduced into the rectum instead of the forefinger. The only purpose which it answers, (as far as I know) is that of saving the surgeon's forefinger: but in using it, you lose another advantage, namely, that of the sense of touch; and in my own practice, I have found that I could complete the operation better with my forefinger than with the wooden gorget.

These, however, are only slight differences in the mechanical part of the operation, involving no difference in the principle on which it is performed.

When the sinus, or sinuses, are completely laid open, the wound is to be dressed, by laying a piece of lint between the cut edges. Observe that the only object of this dressing is to prevent the cohesion of the opposite surfaces, and that you cannot dress them too lightly. If you cram the sinuses as full as possible of lint, you give the patient great pain, and you prevent the free escape of the purulent discharge, which will, in consequence, burrow, and make fresh sinuses. If opium agrees with the patient, it is worth while,

immediately after the operation, to give a few drops of laudanum, with a view, not to relieve pain, but to occasion costiveness, so that the dressings may remain undisturbed for two or three days. After this, a gentle aperient may be administered, which will prevent the ill effects of a too long-continued constipation, and, at the same time, bring away the first dressings. It is a false notion to suppose that the immediate re-introduction of the dressings is a matter of importance. On the contrary, it is much better to apply merely a poultice to the external parts for three or four days, until the first inflammation, consequent on the operation, has subsided. After this, you may dress the sinuses daily, either with dry lint, or with lint spread with some stimulating ointment, or soaked in a stimulating lotion. But still observe the rule which I have already laid down, of dressing the parts as lightly as possible. If you do otherwise, each dressing is almost, or quite, as painful as the original operation; and, owing to the confinement of the discharge, the old sinuses become extended, or fresh sinuses are formed. I am convinced that it is chiefly in consequence of the use of too much lint in dressing, that it so frequently happens that further operations are found to be wanted before the patient's cure is completed. The daily dressing should be repeated until the cut surfaces are cicatrized, but no longer. The cicatrization of the bottom of the sinus will be completed better without the dressing than with it. The lint is, in fact, like a seton, keeping up ulceration and suppuration, and after it has done what is wanted, in preventing the adhesion of the surfaces nearest to the anus and rectum, the sooner it is dispensed with the better.

After the sinuses are healed, there is always a sort of fissure or chink left by the side of the anus, which gradually fills up. If the sinus has been deep, this chink will be deep in proportion, and then an inconvenience will follow, which is of little consequence, but of which you should inform your patient, as otherwise he may think that the disease is not cured, though it is so in reality. The mucus of the rectum, sometimes stained with the fæces, will flow through it, and stain the linen. But this is only temporary; the chink, however deep, will gradually close, and the mucus will ultimately be retained as well as ever. If the patient be anxious on the subject of this mucous discharge, you may easily set his mind at ease by pointing out to him that it is not purulent, but that it dries and becomes stiff on his linen, as if it were starch.

In a few cases, in spite of all your care, you will not discover all the sinuses in the first instance; and if the wound does not heal as under ordinary circumstances, you will generally have reason to suspect that a sinus remains undivided. Under these circumstances, you must examine the parts again and again, until you discover this other sinus, which must then be laid open like the former ones. Such an undetected sinus is occasionally no small annoyance both to the patient and to the surgeon. I attended a lady who suffered from a complication of several sinuses near the rectum. I laid open all that I could discover, and the healing process seemed to be going on favourably; but after a considerable lapse of time, it was not completed: and all this time she complained of uneasy sensations, which I could not well explain. After repeated examinations, I discovered a sinus high up, not more than an inch in length, which seemed to be involved in the *levator ani* muscle. I laid it open, and she was immediately relieved, and in a very short time her cure was completed.

It very rarely happens that any bad consequences supervene on this operation. We can scarcely reckon hæmorrhage among them, as we can always command it. In seasons when erysipelas has prevailed, I have known it sometimes begin at the wound, extend over the nates, and afterwards over the neighbouring parts, and, of course, erysipelas is always attended with a certain degree of hazard. In a very few cases erysipelas appears to extend up the mucous membrane of the rectum into the other parts of the intestine; and this is a most formidable disease indeed. The symptoms are very peculiar, and, as far as I know, are not described by writers. The pulse becomes very rapid, and at the same time, weak; then it is irregular, and intermitting. The abdomen is tympanitic, in consequence of the intestines being distended with air; hiccough takes place; there is a great prostration of strength; and the patient often dies in the course of three or four days, sometimes sooner. A lady was under my care, on account of a very complicated fistula, with a great number of sinuses; it was one of the worst cases of the kind which I ever met with. After the operation, however, the sinuses gradually healed, and at the end of three or four months (or perhaps the period was longer, for I have no notes of the case) she was so nearly well, that the day was fixed for her leaving London. At this period she had a severe rigor, and fell into a state of collapse. Erysipelas appeared at the anus, and extended a little way on the nates; but it was evident that it extended chiefly up the inner membrane of the intestines. The symptoms, which I have already described,

shewed themselves in a more intense form than in any other case which has fallen under my observation. She never completely recovered from the state of collapse which immediately followed the rigor, and she died in less than forty-eight hours. This internal erysipelas, however, is not necessarily fatal. I have known more than one case in which it manifestly occurred, but without the usual prostration of strength, and the patients recovered. When I have met with a case of this kind, I could never entertain a doubt as to the medical treatment which should be employed. It is sufficiently indicated by the symptoms; and for the most part the great failure of the vital powers demands the free exhibition of cordials and stimulants.

I stated in a former lecture, that a large abscess is sometimes formed high up by the side of the rectum, and above the sphincter muscle. When the existence of such an abscess is ascertained, you ought without delay to puncture it, otherwise not only will the patient have to undergo a great deal of unnecessary pain, but the abscess will extend itself in the pelvis until it attains an enormous size. You must ascertain the situation of the abscess, by observing to what part the pain is referred, and by examining the rectum with the finger. Then introduce a lancet through the external skin by the side of the anus, in the direction of the abscess, until the matter flows. Frequently the abscess is at such a depth that the lancet does not reach it until nearly the whole of the blade has penetrated the soft parts; and sometimes an ordinary lancet is scarcely of sufficient length to accomplish what is wanted. You are then to introduce a probe-pointed bistoury through the opening thus made, and divide the rectum at the lower part of the abscess, carrying the incision downwards, so as to include the sphincter ani muscle, as you would in an ordinary case of fistula. These incisions make a free opening into the abscess, which is immediately emptied of its contents. The wound is then to be dressed in the ordinary way, and nothing more is wanted. It is quite unnecessary, in these cases, to lay the whole abscess open into the rectum; the free division of it at the lower part is sufficient; and if the incision were to extend further, it might give rise to a dangerous hæmorrhage from large blood-vessels beyond the reach of the finger.

I have met with abscesses, such as I have now described, containing from half a pint to a pint of matter. I have had no opportunities of dissection, so as to ascertain their exact locality; but from examinations made with the finger, after they have been opened, I am led to suspect that their usual situation is between the *levator ani* muscle and the pelvis, and that the division of the lower part of this muscle, as well as that of the whole of the *sphincter ani*, is necessary to the cure.

These large pelvic abscesses occur in some instances as the original and only malady. In other cases, as I explained in my last lecture, they are the result of an abscess lower down, or a common fistula. I have met with several cases such as I am about to describe. I have been consulted concerning a fistula near the lower part of the rectum, which I have laid open in the usual manner. But, after some time, I have found that the parts shewed no disposition to heal, or that they healed imperfectly, and that there was a discharge of pus much greater than could be accounted for from the apparent extent of the sore surface. I have thus been led to make a further examination; and at the upper part of the sinus which had been previously laid open, I have discovered a small orifice, through which a long probe might be passed to a great depth. I have laid open the lower part of this upper abscess into the rectum, and could then introduce my finger so as to feel the broad inner surface of the pelvis on one side, and what seemed to be the *levator ani*, on the other. After this second operation the purulent discharge has immediately become much reduced in quantity, and in the course of a short time the patient's cure has been completed.

In those cases in which a *fistula in ano* occurs in connexion with some organic disease of the lungs or liver, I advise you never to undertake the cure of the *fistula*. No good can arise from an operation under these circumstances; but if you perform it, one of two things will happen: either the sinus, although laid open, will never heal, or, otherwise, it will heal as usual, and the visceral disease will make more rapid progress afterwards, and the patient will die sooner than he would have done if he had never fallen into your hands.

ADDITIONAL OBSERVATIONS RESPECTING THE DIVISION OF THE SPHINCTER MUSCLE.

In the course of these lectures on the diseases of the rectum, I have frequently had occasion to speak of the division of the sphincter muscle; but I should leave the subject incomplete if I did not offer some further remarks illustrative of that operation.

I usually divide the sphincter from within outwards, using a probe-pointed bistoury, having the cutting edge slightly convex. I introduce the fore-finger of one

hand into the rectum, which then serves as a guide to the bistoury. This must be introduced a considerable way, so as to be quite above the upper margin of the sphincter, which is then to be cut across, the incision extending fairly into the surrounding adeps. A single stroke of the cutting instrument is not sufficient, and generally as many as two or three are necessary to accomplish this purpose. But in the female subject, whether you divide the sphincter in a case of fistula, or in one of any other disease, I caution you that you should never make your incision exactly in front, towards the vagina. The wound made in this direction does not heal in a proper manner: the muscle, if divided at this point, is never a perfect sphincter afterwards, and the patient labours under an incontinence of fæces, from which she never completely recovers, and which makes her miserable for life. Then, it is not advisable, in either sex, that you should divide the sphincter directly backwards towards the os coccygis. If you do, you will find that the wound does not very readily close, and that it is liable to crack and be reopened afterwards. There is a sufficient anatomical explanation of what I have now mentioned. You will recollect that the *sphincter ani* consists of two parts or layers. The inner layer is circular, embracing the anus like a ring; the external layer on each side is attached posteriorly to the apex of the *os coccygis*, by elastic ligament, and anteriorly to the central point of the perineum. If you cut in the direction backwards towards the os coccygis, you divide, it is true, the inner or circular layer of fibres, but not the outer layer. The knife passes between the two lateral portions of this outer layer, and simply splits or separates them; and the contractile power of this part of the muscle remains, and interferes with the cicatrization of the wound.

MANSLAUGHTER BY BLOWS,

AND FRACTURING THE TIBIA WITH A POKER.

Perth Circuit Court, Thursday, April 14, 1836.

Mary Finlay, of Kirriemuir, was charged with having, in January last, murdered James Finlay, her husband, by striking him with a poker on the legs, dashing the house-door violently against his person, and beating him to the ground, whereby his leg was broken, and he died in consequence about a fortnight afterwards. The panel pleaded Not Guilty; whereupon evidence was produced, of which we will merely give an abridged outline.

Jean Milne, niece of the deceased, and who was servant in the house at the time in question, deponed that on Saturday evening, the 23d of January, several individuals were drinking in the house; that after their departure the deceased attempted to break the dishes in the kitchen with a poker, which the panel wrested from him, and struck him on the shoulder once or twice with it; that the witness having then left the room, returned shortly afterwards, and found the deceased lying on the floor, and the panel striking him with the poker with considerable violence on one of his legs; that after this the panel went to another room, and the witness assisted the deceased to undress, and in taking off his left stocking saw blood on the leg. Deceased refused to go to bed, and went towards the door, which was opened by the panel; and after the deceased got out, heard the cries of murder. The door was shortly afterwards opened, and witness dragged in the deceased, assisted by the panel. It was at this time that witness saw the bone of the leg protruding, and deceased cried out that his leg was broken. The deceased was given to drink, and was drunk on the above evening. Witness had no quarrel with panel previous to leaving her service. Had said, for the purpose of screening the panel, that she herself opened the door to let the deceased out. There was no blood on the sides of the door, or beneath where the leaves met. Heard the deceased request his leg to be released when caught between the leaves of the door as he went out; and when he escaped, the door shut with force. When the door was opened, the deceased was found sitting in front of the door, but there was no mark on him as if he had got a fall. He was almost naked, and the street was wet and dirty.

Other witnesses deponed to the condition in which the panel was on the first part of the evening, and after the accident, in almost similar terms. Several witnesses also swore that the deceased, after the injury, charged the panel with having broken his leg with the poker, and that she expressed much contrition for the sufferings of the deceased.

Alexander Webster, surgeon, was called to Finlay's house between twelve and one o'clock on the Sunday morning. Found him lying on his back on the kitchen floor, the upper part of the shin-bone of the left leg protruding through the flesh. Finlay said it was his wife that had done it with the poker. Witness sent for Mr. Malloch,

and had the bone set. Attended the deceased occasionally until the time of his death, on Monday, the 8th February. On the night of the injury the deceased was intoxicated. His death might be ascribed partly to the injury, and partly to delirium tremens; this made its appearance two days after the injury. Prescribed opiates and a little wine. Finlay was in a low state. Was directed to have the body disinterred, which was done; and the bones of the leg were preserved. They were put up by Dr. Smith, of Forfar, in presence of the witness. Identified the bones produced. Never saw so severe a fracture. A man's leg may be broken by a fall on level ground, but had never known of such a fracture as this from a fall on level ground. Possible to fracture the tibia on level ground, and perhaps the fibula. In general such a comminuted fracture denotes violence — most likely crushing. There were no marks of violence on the limb. Quite possible that the fracture of the tibia might have been occasioned by blows from a poker; but impossible that a man could have walked, however short a distance, with the tibia fractured as this was.

Cross-examined.—Saw no discoloration of the leg, nor of the shoulder. A blow by a hard instrument produces ecchymosis; saw none on the body. A blow, such as to produce even simple fracture, would produce such marks. The fibula would not have carried him two steps after such a fracture of the tibia. Does not think the fracture could have been occasioned by crushing between the leaves of the door, without tumefaction. There was but very slight tumefaction about the wound, and no ecchymosis on any part of the limb; there was no inflammation on the Wednesday afternoon next after the injury; but the delirium tremens continued. Had attended Finlay during two attacks of delirium tremens previous to all this.

Mr. James Syme, professor of clinical surgery in the University of Edinburgh, has had great experience in surgical cases. On the bones being produced, he said it was a remarkable fracture in some respects —in so far as the fracture of the fibula was through the upper end of the bone. That of the tibia also led him to think it must have been done with great violence. Could not be from a simple fall. There are marks which lead him to think the fracture of the tibia had been by a blow: partly from the part of the bone broken, and the appearance of the bone in the neighbourhood, which appears to be dead bone. Thinks the poker might cause the fracture of the tibia. It was possible he might walk a little after fracture of the tibia, supposing the fibula to have remained entire—and though very improbable, yet not impossible, that he might have done so with both bones broken. Had known cases of a person walking after a thigh bone was broken. This is a more extreme case than walking after the tibia was broken, if the fibula be entire. If fractured, and yet not displaced, it would be more possible to do so. The crush at the door might account for the fracture of the remaining part of the bone. The slam of the door might fracture the fibula, or the fall might, after the limb was fixed. Losing his balance, there might be a twist of the limb. There could be no ecchymosis till some hours after. Should have expected ecchymosis near where the fibula was broken, or at any rate within three days thereafter. With an open wound there might be no ecchymosis, if the blood were taken away.

By the Judge.—Difficult to conceive that both bones could have been broken by the poker, or that he could have walked to the door if they had. The tibia might have been fractured and not displaced— and the fracture might have been rendered compound afterwards. Thinks it very probable that there would have been dislocation, if the leg had been squeezed. In absence of dislocation, it was reasonable to suppose there was no squeeze. It was his opinion that death ensued from the fracture. Delirium tremens often comes on after severe fractures, especially those which prove fatal. Excessive drinking will bring on the common delirium tremens, and a person of dissipated habits is more apt to suffer from such an attack after injury. Delirium frequently comes on in a short period after injury. Does not think that this is a recurrence of the same attack he had before. He was no doubt predisposed to the disease, but the fracture was the cause of his death.

Cross examined. — Delirium sometimes comes on before inflammation. It sometimes ensues from withdrawing a stimulus from those who are of a shattered constitution, and often in excitement. The dead part of the bone might be caused by a fall as well as a blow, but it is much more reconcileable to a blow.

By the Judge.—The comminution of the upper part of the bone might arise from a fall, but more likely from the squeeze. If a blow had been given with a poker on the shoulder, he should have expected ecchymosis within three days. To the best of his judgment, a fall on level ground could not have produced such a compound fracture. Had a case occurred in witness's own practice, he should have been inclined to remove the dead obtruding bone: but this was a matter of opinion.

Dr. Alexander Smith, Forfar, was at the disinterment of Finlay, and thinks, from what he has heard to-day, that the fracture of the tibia was more likely to have been produced from a blow. Supposing the fibula entire, it was possible to walk as far as the door. Thinks the blow and the squeezing sufficient to produce the fractures of both bones.

Mr. J. Malloch, surgeon, attended the deceased; inspected the limb very particularly. No external appearances—and from any indications should have supposed no blows given. Should expect ecchymosis from a blow any where. Could ascertain no comminution when he examined the leg. The post-mortem examination agreed with his report during life. The bone was roughly handled after exhumation; so much so as might fracture the fibula and produce comminution. The amputation was performed by the servant of an old military surgeon, who seemed to handle the limb roughly to show his familiarity with such things. His decided opinion was, that the fracture was the effect of a fall, not of a blow. The fracture of the fibula was not observed till the body was disinterred, though the leg was carefully examined, on the morning of the injury, by himself and Mr. Webster.

Mr. Malcom, Perth. Thought the fracture the effect of an external blow. Did not think such a case possible on level ground, without violence. Even the exercise of the leg in walking might break the fibula.

The Crown Counsel here intimated his departure from the charge of murder; when the panel's Counsel called as a witness,

Mr. Lizars, Professor of Surgery in the Royal College of Surgeons, Edinburgh. His opinion is, that the injury was the consequence of a fall. Had it been by a blow, should have expected bruises, or ecchymosis, in the vicinity of the fracture. Had seen fractures on the fibula by a fall, but not quite so near the top as in this case. There was matter in the reports read, which led him to suppose it probable the injuries of the fibula might have been sustained after death. Indeed, it was most reconcileable to that supposition. It was very probable that the fibula was broken at the rough handling after amputation. Thinks it impossible that he could have walked fifteen feet with a broken tibia. It is frequently the case, that when the tibia is broken, the fibula, being a slender bone, is broken in the attempt to rise up. Had the leg been broken by the poker, the appearances could not have been such as described in the medical reports. He should have expected ecchymosis, tumefaction, and ruffling of the skin. These would have been still more apparent on Wednesday. Those appearances would depend, of course, upon the degree of violence. Such violence as to produce the fracture must have caused those. Take away the stimulus from an habitual drunkard, and he instantly has delirium tremens; and that not unfrequently causes death. That, as in apoplexy, may occur on the second, third, or fifth attack. If a person is habitually addicted to delirium tremens, it is very likely to be brought on by such an injury as this, but not necessarily.

Cross-examined.—Has known instances of such a fracture as this by a fall. Violence would, of course, render it more likely. Remembers a case in Edinburgh, where a man falling his own height on level ground, had fractured his leg.

The Lord Justice Clerk then went through the evidence, and told the jury, that as the medical evidence was conflicting as to the cause of death, it was for them to judge whether an injury such as they had heard described as being inflicted on the person of the deceased, was to the danger of life.

The jury found the panel *guilty* of assault with the poker, to the effusion of blood, but recommended her to the leniency of the Court.

Sentenced to imprisonment for twelve months in the jail of Forfar.—Slightly abridged from the *Perthshire Advertiser*, April 21.

MEETING OF THE PROFESSION IN WARWICKSHIRE,

TO OPPOSE THE MEDICAL ARRANGEMENTS UNDER THE NEW POOR LAW.

To the Editor of the Medical Gazette.

Sir,

I send you an account of the proceedings of a meeting held at Warwick, the 14th of April, with a request that you will insert it, together with the Petition which was adopted, in your very widely circulating journal.—I remain,

Your constant subscriber,
J. Wilmshurst,
Chairman.

Warwick, April 20, 1836.

Among the resolutions passed at the meeting were the following:—

1. That this meeting view with surprise and concern certain statements put forth by the Poor Law Commissioners, in the 25th section of their First Annual Report —statements which must have been founded

on few and rare exceptions, not in any degree justifying a general imputation on the character of medical practitioners.

Their feelings on the subject of this imputation might lead them to express themselves more strongly, if they did not feel that they might confidently rely for its refutation on the opinion of the public in all parts of the country, concerning the disinterestedness, humanity, and honour, of the medical profession.

2. That it appears to this meeting that the system of obtaining medical attendance upon the sick poor adopted by the Poor Law Commissioners, is arbitrary and inconsistent on their part, degrading to the profession, and deplorably inefficient as a provision for the sick.

3. That a petition be presented to Parliament, pointing out the inefficiency and injustice of the system of providing medical attendance upon the sick poor, as adopted by His Majesty's Poor Law Commissioners; and that every medical practitioner do acquaint any members of parliament to whom he may be known with the circumstances of the case, and request their support of the Petition, of which the annexed is a copy.

4. That the medical men now assembled belonging to the Provincial Medical Association, request the Council of that Association to insert an invitation in their next annual circular, for all other medical Societies in the three kingdoms to meet them at Manchester in August next, and to engage proper rooms for the discussion of all questions connected with parochial arrangements.

And, 5. That Sir Eardley Wilmot be requested to present the Petition to the House of Commons, and that the different Members of the Borough and County of Warwick be requested to support the same.

We subjoin the Petition:—

To the Honourable the Commons of the United Kingdom, &c.

The Petition of the undersigned practitioners of medicine and surgery in Warwickshire and the adjacent counties,

Sheweth,

That the system of contract by tender, adopted by His Majesty's Assistant Poor Law Commissioners, for providing medical attendance upon the sick poor, is inefficient and unjust.

1st. It is inefficient, Because in the allotted districts the amount of population is generally scattered over too great an extent of country for any individual to render that prompt and immediate assistance which many cases of illness and *all* accidents require.

2d. And it is unjust, Because, whilst it does not afford proper medical relief to the sick poor, it does not offer a remuneration to the medical practitioner proportionate to the laborious duties required of him; but, a remuneration actually inferior to that allowed for attendance upon criminals.

Therefore your petitioners pray that your honourable house will be pleased to refer this subject to the consideration of a Committee.

Signed by the Chairman, and a large number of medical gentlemen of Warwick, and the adjacent counties.

MEETING AT WORCESTER.

THE NEW POOR-LAW AGAIN.

A NUMEROUS meeting of practitioners of medicine and surgery, resident in the city and county of Worcester, was held on the 19th instant, "to take into consideration the propriety of presenting a memorial to government, on the mode in which medical relief is administered to the sick poor under the new Poor-law Act."

The Mayor, C. H. Hebb, Esq., filled the chair on the occasion.

Dr. Streeten opened the proceedings, by calling attention to some results which had arisen out of the new poor-law act, and which had given great dissatisfaction to the profession. The method of contracting for medical relief to the poor was greatly altered by throwing several parishes together into unions. Dr. S. particularly objected to the system of obtaining parochial medical relief by tender, and also of giving a district of perhaps twenty-five miles to the charge of one individual. He concluded by proposing a memorial. It sets out with complaining of erroneous statements made in the first Report of the Poor-Law Commissioners, which was calculated to injure the medical profession, and to operate to the disadvantage of the sick poor. The memorial then proceeds to point out, that the proposal of the Commissioners to obtain medical aid for the poor by means of tenders from medical men, is degrading to the latter, and injurious to the poor; as, under such a plan, little regard can be had to the fitness of the practitioner. Another evil is, that the districts hitherto marked out, are too extensive to allow of the poor being properly attended. After contradicting the allegations of the Commissioners that medical men have made high charges to parishes, and that there have been collusions between them and the parish officers, the memorial proceeds—"It is no doubt well

known to your Lordship, that the best services of all classes of the medical profession have ever been given gratuitously in the cause of charity, which we take leave to say is more than can be claimed by any other class of professional men; and that this circumstance alone should have protected them from such degrading allegations as are to be found in the report referred to." The memorial concludes with the expression of a hope, that a full inquiry into the best mode of affording adequate relief to the sick poor will be instituted.

The memorial was adopted by the meeting.

It was then moved and carried, "That the Mayor be requested to present the memorial to Lord John Russell, and that the Members of both divisions of the county be respectfully solicited to accompany him."

The Mayor said, that if they were of opinion that his being a medical man, and at the same time holding the office of Mayor of this city, would induce the noble Lord to pay attention to their memorial, he should with great pleasure undertake the task. He thought the subject one of great importance to the profession, and to the sick poor; and he begged his medical brethren, either by word of mouth or by letter, to give him any hint or information which might be likely to insure success.

Dr. Hastings read a communication, addressed by Alfred Power, Esq., Assistant Poor-Law Commissioner, to the Guardians of the Poor, dated Cowbridge, 11th February, 1836. In this paper Mr. Power suggests that the union shall be divided into districts, each under the care of a medical officer, and that the contract shall be divided into two branches—the pauper and the independent; the former including those who are paid for from the parish funds, and the latter of those of the labouring class who shall become annual subscribers to a sick club; the rate of payment per head in both cases to be the same. The terms of annual subscription, it is proposed, shall not exceed the following:—For an individual maintaining himself or herself, 3s.; a man and his wife, 4s.; each child in a family (and if one be subscribed for, all must), 6s.; for every person in the same family, above the age of sixteen, 2s. But this contract not to include midwifery cases.

It was then moved and carried, "That the Lord Lieutenant of the County be respectfully requested to present the petition to the House of Lords; and that the Hon. Col. Lygon and G. R. Robinson, Esq., be requested to present that to the Commons."

Moved by Mr. Hill, seconded by Mr. Walsh: "That an Association be now formed, to be entitled the Worcester County and City Medical Association, for the purpose of affording to his Majesty's Government such information relating to this subject as may be required, and that the Mayor (C. H. Hebb, Esq.) be appointed President."

Mr. R. Hill was requested to act as Secretary, and accepted the office.

Thanks were then voted to the Mayor, upon which the meeting adjourned.

ON PURULENT METASTASIS.

By Dr. R. Froriep.

Dr. Froriep is of opinion that the materials going through the capillaries to the blood are in a state of solution, and do not contain globules; for the porosity of the membrane is not sufficient to permit the passage of globules of pus: so that the appearance of such globules must be coexistent with the effusion of matter. Hence it is incorrect to suppose that a direct discharge of globules of pus takes place into the sac of the pleura, the peritoneum, or the cavity of the arachnoid, as is said, in purulent metastasis; and it is equally erroneous to imagine that, when pus ceases to be secreted from the surface of a sore, it has been transported in the current of the circulation, and deposited in some internal organ, where inflammation is going on.

The mechanism of the formation of the so named purulent metastasis is a follows: if, during the presence of external suppuration, by any contingency, inflammation comes to be kindled up in some internal organ or other, in consequence of the preexisting affection it is prevented from displaying the ordinary characteristic train of symptoms; but, attaining imperceptibly its full development, ultimately gains the ascendancy of the previously existing suppurative process, in which the discharge is suspended, while the vicarious inflammation, acting upon an organism already enfeebled by disease, pursues a rapid course towards a purulent termination.

In support of this mode of explanation, Dr. F. refers to what has been frequently observed, under such circumstances, on post-mortem examination; particularly to those cases where no deposition of pus is discoverable,—merely a serous exudation, or simply the phenomena of incipient inflammation without the effused products.

In accordance with this view, it is plain that a tonic and stimulant treatment, for the purpose of compelling the pus to flow internally, as is vulgarly said, can only serve to augment the mischief commencing. The measures pursued must be antiphlogistic, proportioned to the strength and

constitution of the patient. — *From the British and Foreign Medical Review.—Wochenschrift f. d. Heilkunde*, No. 8. *Berlin* 1834.

THE PROPER TEMPERATURE OF SINAPISMS.

The volatile oil, on which the stimulating properties of the powdered seeds of mustard depend, is not disengaged or formed unless water is added to them; but it has been imagined that very hot water was preferable to cold. M. G. Fauré, sen. has proved, by many careful experiments, that this is not the case, but that water, when heated to 190° (F.) and upwards, prevents the disengagement of the volatile principle of mustard: consequently, that sinapisms should be made with cold water, and for foot-baths the powdered mustard should be first mixed with some cold water, to which boiling water should be added, to raise it to the necessary temperature. By one of those coincidences, which are not uncommon, the same facts have been simultaneously discovered by MM. Geiger and Hesse in Germany. The most satisfactory rationale is, that the sudden heat coagulates the vegetable albumen which forms a coating to each molecule, that prevents the water acting upon it. All causes which coagulate albumen produce the same effect, such as alcohol, strong acids, &c. Cold water, on the contrary, dissolves the vegetable albumen.—*From the British and Foreign Medical Review.—Journal de Pharmacie, Septembre* 1835.

FUMIGATIONS IN HOOPING-COUGH.

Dr. Dohm, of Heide, in the duchy of Holstein, has accidentally discovered a remedy for hooping-cough, that promises to be of considerable use in that too often obstinate and dangerous disease. Two of his own children, a boy and a girl, (the former one, and the latter three, years old,) had been suffering from hooping cough for between two and three months; during which time several remedies, including belladonna, had been tried in vain. The paroxysms were very frequent and extremely violent, so that the fæces and urine used sometimes to be expelled involuntarily. An accident of this kind occurred one evening during the absence of the father; and, to remove the ill smell thereby occasioned, the bedroom was fumigated, and that to such an extent that the child was enveloped in the smoke. Contrary to the expectation of the doctor, the child had not another attack that night; the cough became much milder, and the repetition of the same treatment soon cured it. This encouraged him to try it in other cases, and he invariably found the paroxysm greatly relieved by it, if not completely stopped. The fumigation was made with the common *species fumales* of the Pharmacop. Slesvico Holst. (Olibani libr. duas, Benzoes, Styr. Calamitæ, sing. libr. dimid., Flor. Lavendul., Rosar. rub., singul. unc. quatuor.) He [we think, very justly,] considers the benzoin to be the most efficient ingredient. — *British and Foreign Medical Review.—Pfaff's Mittheilungen, 1ste Jahgr.*, 1 *und* 2 *Heft.*

COLLEGE OF SURGEONS.

Mr. Green has resigned his seat in the Council, and Mr. Babington, of St. George's Hospital, was last Thursday (28th) elected in his place. Mr. Owen has been appointed to give an extended course of lectures on Comparative Anatomy in the new building of the College of Surgeons.

We understand that Mr. Green has also retired from his duties as Professor of Surgery in King's College. Of his professional appointments it is said to be his intention only to retain that connected with St. Thomas's Hospital.

PRESENTATION OF PLATE.

(From a Correspondent.)

The Pupils of the Aldersgate School of Medicine have presented an elegant silver vase to their Lecturer on Anatomy and Surgery, bearing the following inscription:—

"Presented to F. C. Skey, Esq. by the pupils of the Aldersgate School of Medicine, session 1836, in testimony of their high respect for his professional abilities, and their esteem for his private character."

The reverse has the arms of Mr. Skey, with the motto, "Praise is the reflection of Virtue."

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *April* 26, 1836.

Abscess	4	Heart, diseased	4
Age and Debility	67	Hooping Cough	5
Apoplexy	11	Inflammation	31
Asthma	13	Bowels & Stomach	4
Cancer	3	Brain	3
Childbirth	2	Lungs and Pleura	7
Consumption	73	Insanity	5
Convulsions	26	Jaundice	1
Croup	5	Liver, diseased	3
Dentition or Teething	6	Measles	1
Diarrhœa	2	Mortification	3
Dropsy	22	Paralysis	2
Dropsy on the Brain	11	Scrofula	1
Dropsy on the Chest	3	Small-pox	13
Epilepsy	1	Stone & Gravel	1
Erysipelas	2	Unknown Causes	3
Fever	4		
Fever, Scarlet	4	Casualties	7
Hæmorrhage	3		

Increase of Burials, as compared with the preceding week . . . 108

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, MAY 7, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XXXII.

ARSENICUM, *continued.*

I proceed now to examine the *influence of arsenious acid on the putrefactive process.*

Until the commencement of the present century, it was supposed that the bodies of those poisoned by arsenious acid were unusually prone to putrefaction. This, however, has been satisfactorily disproved, by the experiments and observations of Klank, Kelch, Hünefeld, and others; and it appears, that when placed in contact with animal textures, it acts as an antiseptic. "I have kept a bit of ox's stomach four years in a solution of arsenic," says Dr. Christison, "and, except slight shrivelling and whitening, I could not observe any change produced in it." This antiseptic property of arsenious acid, which has been, in my opinion, fully and satisfactorily proved, sufficiently accounts for the good state of preservation in which the alimentary canal has been frequently found some months after death, in those poisoned by this acid, where it was not evacuated by vomiting or purging.

But there is another effect said to be produced on the bodies of animals, which is not so easily accounted for: I mean, their conversion into a kind of mummy-like or adipocirous matter. The following is an abstract of the phenomena, as deduced from numerous experiments and observations, several of which you will find recorded in Dr. Christison's work. After death putrefaction commences, and is attended with the usual odour; but, instead of increasing in the customary manner, it seems for a time to be at a stand-still, and then a series of changes commences of a peculiar character: the soft parts become firmer and drier, at the same time retaining their structure; the putrid odour is frequently succeeded by one resembling garlic; the skin becomes brown and parchment-like; the muscular fibres and cellular tissue (especially of the abdominal parietes) are changed into a tallowy cheesy-like mass; the liver, spleen, and heart, become dry, while the bowels, lungs, and brain, form a greasy mass. During these processes, it is said that the quantity of arsenic diminishes, probably by exhalation; a circumstance very probable, when we bear in mind the garlic odour emitted by the body, and which has been observed by several writers. The diminution, however, must be exceedingly small. After some time, the cheesy smell disappears, and the body becomes dry and hard. I would remark, that, in some cases, the alimentary tube has been found little changed, or decomposed, although other parts of the body had been completely mummified.

I ought, however, to remark, that some writers do not ascribe these phenomena to the influence of arsenious acid, but to other causes. Jäger tells us, that in his experiments the putrefaction of the bodies of animals poisoned by arsenic seems neither to be retarded nor hastened, whether they were buried or not; but he admits that parts in contact with an arsenical solution seem preserved from putrefaction. Seemann also states, that the bodies of three dogs underwent the usual kind of putrefaction after death. However, that in many cases arsenic modifies the putrefactive process, can hardly, I think, be doubted by those who carefully examine the evidence adduced in favour of this opinion.

Does this mummifying process depend

on the chemical influence of the arsenic; or ought we to refer it to a change effected by the arsenic on the body during life, causing "a different disposition and affinity among the ultimate elements of organized matter, and so altering the operation of physical laws in it?" The latter hypothesis, though adopted by Dr. Christison, appears to me untenable; for, in the first place, there is no evidence of any peculiar change of this kind during life; secondly, that this does not take place appears probable from the putrefactive process commencing after death as usual; and it would appear that the peculiar influence of the arsenic does not commence, or at least is not evident, until this process has existed for some time, and when a garlic odour is evolved by the body. It is, indeed, true that the quantity of arsenic which has been detected in the body after death, is, as Dr. Christison remarks, "almost inappreciably small;" but it is probable that the quantity is much larger than chemists have yet been able to recognize. But it is not at all unlikely that the arsenious acid may enter into new combinations, while within the dead body, and in this way become diffused, probably, in a gaseous state: the garlic odour which is evolved favours this notion, as well as the statement made by some, that the quantity of arsenic in the body diminishes during the progress of the mummifying process.

In connexion with the morbid appearances produced by arsenic, the following remarks, made by Orfila in the *second* edition of the "*Dictionnaire de Médecine*," article Arsenic, deserve notice. "Under certain circumstances, the mucous membrane of the stomach and intestines is lined with a multitude of brilliant points, composed of fat and albumen: placed on burning coals, these grains decrepitate on drying, and produce a noise which has been improperly denominated *detonation*: they inflame as a fatty body when they contain a notable quantity of fat, and exhale an odour of burned animal matter. These *fatty* and *albuminous* globules may be met with in the bodies of individuals who have not been poisoned, and require attentive examination in order to distinguish them from arsenious acid. The best method of avoiding this error is to digest these granular parts with water, and to apply the tests proper for demonstrating the existence of arsenious acid."

Modus operandi.—I now proceed to notice some theoretical points connected with the action of arsenious acid, such as, whether this poison becomes absorbed—whether its constitutional effects arise from its absorption—and on what parts of the body it appears to exert a specific influence. I shall examine the two first points under one head.

1. I believe that *the remote effects of arsenious acid are consequences of its absorption.*—I am led to this conclusion from the following data:—

(*a.*) *Arsenious acid is poisonous to whatever part of the body it is applied, the nerves and muscular fibres excepted.*—For example, it acts when applied to the common integument, to wounds, to ulcers, to mucous surfaces (as the rectum, vagina, stomach, conjunctiva, and bronchia), to serous membranes (as the pleura and peritoneum), or when injected into the veins.

(*b.*) *The constitutional or remote effects of arsenious acid are of the same kind,* though the part of the body with which the poison may have been placed in contact, varies.

(*c.*) *The quickness with which the symptoms come on, and their violence,* are in proportion to the absorbing powers of the part. The quickest death is caused by throwing a solution of arsenious acid into the veins; and when applied to wounds, it acts more energetically and quickly than when placed on the skin.

(*d.*) *The most soluble are the most active preparations of arsenic.*—A solution of arsenious acid is more active in producing constitutional disorder, than the same quantity of the acid swallowed in a solid form. Arsenite of lime, which is less soluble than the free acid, is somewhat less energetic as a poison.

(*e.*) Lassaigne states he found arsenic in the infiltrated pleura of a horse killed by this poison; and Foderé thought he had detected it in the urine. Further experiments, however, are required to prove these statements.

(*f.*) It has no poisonous action when applied to the nerves, whereas it is decidedly poisonous if applied to parts the nerves of which have been cut.

2. *The parts affected by the remote operation of arsenic* are several; but those more particularly suffering are, *the alimentary tube*, *the heart*, and *the nervous system*: in addition I may mention the *lungs* and the *skin*, which are frequently affected in a peculiar manner.

(*a.*) That the *alimentary tube* is specifically influenced, is shewn by the fact that inflammation, and even ulceration, of the gastric membrane, have been produced, though the poison had been applied to other parts; so that when we find these appearances in cases where arsenious acid has been swallowed, we must be cautious in inferring that they arise from the local or chemical action of the poison. The rectum and the stomach are more frequently affected than any other parts of the alimentary tube.

(*b.*) That the *heart* is also specifically

acted on by arsenious acid is proved by the symptoms during life (the anxiety at the præcordia, the quick, irregular pulse, &c.), by the post-mortem appearances (red spots in the substance of this viscus), and by the diminished susceptibility to the galvanic influence.

(*c.*) The specific affection of the *nervous system* may also be inferred, and even the particular part suspected, by the symptoms. Thus the headache, the giddiness, the delirium or stupor, the insensibility, and the congestion of the cerebral vessels, would lead us to infer the affection of the brain; whereas the feebleness and lassitude, the trembling of the limbs, the wandering pains, the impaired sensibility of the extremities, and, lastly, the paralysis or tetanic symptoms, would seem to point out the spinal marrow as the part affected. Some even go so far as to assert that the lower portion of the spinal marrow (*i. e.* the cauda equina), is the part principally disordered. Part of the difficulty of breathing, and perhaps also of the disorder of the heart's action, may arise from the affection of the medulla spinalis.

(*d.*) The affection of the *lungs* has been inferred from the pain, the cough, and the occasional inflammatory appearances after death.

(*e.*) The eruptions and other altered appearances of the *skin*, and the falling off of the hair and nails (sometimes noticed), have led to the idea of the specific influence of arsenious acid on the cutaneous system,—an opinion which seems further supported by the fact of the remarkable influence it exercises in some cutaneous diseases, especially lepra.

(*f.*) The salivation noticed by Marcus, by Mr. Furley, by Cazenave, and others, seems to show that the *salivary* glands are sometimes specifically influenced.

(*g.*) The swelling of the face, and the irritation and redness of the eyelids, deserve notice in speaking of the specific effects of this poison.

Uses.—So powerful a poison as arsenious acid necessarily requires to be employed with great caution, and that we should watch its effects most carefully and attentively. There are, indeed, some who protest against the use of it altogether, as being in the highest degree dangerous, and sometimes fatal, even when given in small doses. Unfortunately, however, we are often obliged to resort to it, inasmuch as, on several occasions, we have no other remedy of equal efficacy; and it must be admitted, that when employed with proper precautions, it rarely produces unpleasant consequences. This justification of the use of arsenic applies principally to its internal employment, for I conceive we are rarely warranted in using it for local purposes—that is, as an external application, because we, in most cases, derive no advantage from it which we cannot gain from many other less dangerous agents; and in such instances, therefore, by using arsenic we are unnecessarily risking the safety of our patient. Even the internal exhibition of it is not, I conceive, in all cases admissible: thus its specific influence over the digestive organs renders it improper where there exist any lesions of these parts.

(1.) *External use.*—Arsenious acid has long been employed as an external application. I have already expressed my opinion, that its employment in this way is seldom warrantable; and, in support of this assertion, I may quote one case. M. Roux, the celebrated surgeon, at Paris, states that he amputated the breast of a girl 18 years of age, on account of a scirrhus of considerable magnitude. After the cicatrix had been several days completed, ulceration commenced, accompanied with darting pains. To avoid frightening the girl by the use of the actual cautery, he applied an arsenical paste over a surface of about an inch in diameter. Colic, vomiting, and alteration of countenance, came on the next day, and in two days afterwards she died in violent convulsions. "I am convinced," says M. Roux, "that this girl died poisoned by arsenic." I could quote several other cases illustrative of the same fact, but shall content myself with referring to Wibmer's work for an account of them.

The following case, related by Desgranges, shows the danger of applying arsenic externally, even when the skin is sound:—A chamber-maid rubbed her head with an arsenical ointment, to destroy vermin. Though the skin was perfectly sound, the head began to swell in six or seven days after; the ears become twice their natural size, and covered with scabs, as were also several parts of the head; the glands of the jaw and face enlarged; the face was tumefied, and almost erysipelatous. Her pulse was hard, tense, and febrile; the tongue parched, and the skin dry. To these were added excruciating pain, and a sensation of great heat. Vertigo, fainting, cardialgia, occasional vomiting, ardor urinæ, constipation, trembling of the limbs, and delirium, were also present. In a day or two after, the body, and especially the hands and feet, were covered with a considerable eruption of small pimples, with white heads. She finally recovered, but during her convalescence the hair fell off.

A somewhat ludicrous instance of the ill effects caused by the external use of arsenic is related by Dr. Paris. A bold empiric, in the neighbourhood of St.

George's Fields, undertook to remove the deformity of bow-legs in a dandy drawing-master, by *rasping the shin bones,* and applying arsenic to the surface of the wound!—in consequence of which, in addition to extensive local mischief, the unhappy dupe became paralytic.

I am aware that Mr. Blackadder asserts the danger of employing arsenic as a caustic consists in not applying a sufficient quantity! A small portion, says he, becomes absorbed, whereas a large quantity quickly destroys the organization of the part, and stops absorption. This reasoning might be admissible, were arsenic a *chemical* agent, which it is not. I, therefore, still hold the opinion, that the external use of it as a caustic is not warranted. It is but right, however, that I should tell you that it has been employed and recommended by many high authorities, among whom are, Sir Astley Cooper, and the late Baron Dupuytren.

Though employed as a caustic, yet it produces no known chemical action on the part. Hence, therefore, some term it a *dynamical* caustic, in opposition to those acting obviously by chemical agencies, and which they term *chemical* caustics. Applied in various forms, it has long been celebrated for the cure of *cancer*, from being the active ingredient of several empirical compounds which gained some notoriety in this disease. For example, Miss Plunkett's paste consisted of arsenious acid, sulphur, and the leaves of several species of ranunculi, the whole being beaten into a paste, and made into balls. The leaves of the ranunculi were employed to destroy the cuticle, which the arsenic was incapable of doing, and to allow this to act on a living part. There are many other quack preparations which have been used for the same purpose, in some of which, arsenious acid, in others, sulphuret of arsenicum, is the active ingredient; but I shall not pursue the subject further.

Notwithstanding the recommendations which arsenic has received as a remedy for cancer, no surgeon, I believe, now places any reliance on it, it having in, I think I may say, every genuine case, disappointed the hopes entertained of its remedial powers. The same remark, indeed, applies to all other remedies: even the knife will not always, nor even generally, save the patient; for in many instances, if we remove one part affected with cancer, the disease will make its appearance in another. Hence some have concluded that it is a constitutional disease, and, therefore, not relievable by local measures. The uselessness of arsenic in cancer, and the danger attending its employment, have led to its almost total disuse.

Besides cancer, there are several other diseases in which it has been used. Sir Astley Cooper, in his Lectures on Surgery, recommends an arsenical ointment, containing a drachm of arsenious acid to an ounce of lard, as an application to hard *venereal warts.* It produces inflammation and sloughing of them. *Lupus* is another disease for which arsenic has been employed. *Dupuytren's powder* is composed of 99 parts of calomel, and 1 of arsenious acid, and was much employed by the late Baron Dupuytren, rather as a specific than as an escharotic, in this disease. In lupus, arsenic is much employed by Biett in the Hôpital Saint Louis, either in the form of Dupuytren's powder, or as an arsenical paste: the first is preferred in females and irritable subjects. The *poudre arsenicale de Rousselot* is prepared by mixing half a drachm of white arsenic with an ounce of cinnabar, and half an ounce of dragon's blood. It may be made into a paste with saliva or gum-water. Cazenave states that he has seen arsenical applications used by Biett, and he has himself many times employed them in lupus, without ever having met with one case of bad effects. Of course it is very necessary never to apply these agents to large surfaces: thus the arsenical paste should never be applied to a surface larger than the size of a shilling.

(2.) *Internal use.*—The following are the principal diseases in which it has been employed internally, generally in the form of solution.

(*a.*) *Intermittent fevers, and other periodical diseases.*—Of all remedies for agues, none appear to have been so frequently successful as arsenic, for it has cured on many occasions when other means (even cinchona) had failed. It was brought in to use by Dr. Fowler, of Stafford, who, finding the great success attending the employment of *Edwards's "Tasteless Ague Drop,"* was induced to examine it with great attention; and his *mineral solution* is intended to be a substitute for this quack remedy. I do not think it necessary to recapitulate even the names of the numerous writers on the beneficial effects resulting from the use of arsenic in intermittents; but shall content myself with saying that it is a most valuable agent. Some have objected to its employment, on account of the occasional ill consequences arising from it; but if proper precautions be used, these are very rare. It is not necessary to intermit its use during the paroxysm, for I have seen it given with the best effects during the attack. Dr. Macculloch states that $\frac{1}{16}$ of a grain of white arsenic, given three or four times a-day, will sometimes cure ague when the liquor arsenicalis (which contains arsenite

of potash) fails; but I confess I cannot help suspecting some fallacy in the observation. In administering arsenic (whether in the solid or liquid form), you should be aware that it occasions less gastric disorder if given when the stomach is filled with food, or at least if exhibited after a meal. The explanation of this is obvious: the mucous membrane then comes in contact with a much smaller portion of arsenic than it would were the stomach empty. Hence avoid giving this solution in the morning fasting. Sometimes you will find it advisable to combine opium with it, in order to enable it to be retained more readily by the stomach. In employing arsenic internally in this as in other diseases, always be on the watch for the occurrence of any of the symptoms already mentioned under the head of slow poisoning by arsenic,—such as the swelling of the face, the redness of the eyelids, the dryness of the throat, ptyalism or sore gums, or gastric irritation; or even symptoms of cerebro-spinal disorder,—such as cramps of the legs, or headache. Indeed, even if none of these symptoms should come on, it is advisable never to continue its use more than two weeks without intermitting a few days, in order to guard against the occasional ill effects arising from the accumulation of the poison in the system. In some cases arsenic is given in combination with cinchona, or the sulphate of quinia. Ague is not the only intermittent disease in which this mineral has been found beneficial; for in various affections of the nervous system which assume this type, arsenic has been found highly beneficial: for example, periodical headaches, neuralgias of an intermitting form, epilepsy, &c.

(*b.*) *Chronic skin diseases.* — In various chronic affections of the skin, particularly the scaly diseases (lepra and psoriasis), eczema, and impetigo, arsenic is one of our most valuable agents. I can confidently recommend it in lepra, having seen a large number of cases treated by it, most of which were cured, and in all benefit derived from its use. Begin with from six to ten drops of the arsenical solution of the Pharmacopœia, three or four times a day. Frequently the disease is relieved without any other obvious constitutional effect: sometimes a febrile condition of the body is brought on, with a slight feeling of heat in the throat, and thirst; occasionally with an augmentation of appetite: the urine and cutaneous secretion often promoted, the bowels may be constipated or relaxed, and occasionally, as I have already noticed, salivation takes place. If the patient complain of swelling and stiffness about the face, or itching of the eyelids, you ought immediately to suspend the use of the medicine. Ichthyosis and elephantiasis are said to have been benefitted by the use of it.

(*c.*) *Various chronic affections of the nervous system* have been treated by the arsenious acid, and with occasional benefit: for example, epilepsy, chorea, and even tetanus. I have seen arsenic used in a number of epileptic cases, and in none was the disease cured. In some the fits occurred less frequently, but, as the disease is exceedingly irregular, it is difficult to decide whether this was the effect of the medicine. In chorea, I have seen advantage now and then accrue from the use of this agent.

(*d.*) *In bites of venomous snakes and of rabid animals,* arsenious acid has been recommended. In India, the Tanjore pill (the basis of which is arsenious acid) has long been celebrated for the cure of the bite of the Cobra di Capello, and other venomous serpents. In hydrophobia it has also been proposed; but I need hardly say we have no evidence as yet of any good effects resulting from its use.

(*e.*) In *chronic rheumatism* and *gout—syphilis, passive dropsies,* and various other diseases also, this remedy has been employed, but with variable success.

Administration.—Arsenious acid has been given in substance, in doses of from $\frac{1}{16}$ to $\frac{1}{8}$ of a grain, made into pills with crumb of bread; but the practice is objectionable. The most convenient and proper mode of employing it is in solution. In the Pharmacopœia, there is a preparation called *liquor arsenicalis,* and which is a mixture of the arsenite and monocarbonate of potash, coloured by the spirit of lavender. It is prepared by dissolving arsenious acid, and the monocarbonate of potash (called, in the Pharmacopœia, the subcarbonate) in distilled water, and adding the spirit of lavender. Every two fluid drachms of this solution contains one grain of arsenious acid. For different individuals, the dose of this preparation varies, in consequence of a difference in the susceptibilities of different individuals to its influence. Hence, therefore, we ought to commence with small doses (say four or five minims), and gradually increase the quantity; recollecting never to continue its use for a long period, without intermission, on account of the occasional accumulation of the effects in the system. I have known as much as fifteen minims taken three times a day, for a week, without any ill effects.

Smallest fatal dose.—In a medico-legal point of view it is important to determine what is the smallest fatal dose of arsenious acid. It is not easy, however, to give a positive answer to this question. Dr. Christison says, "the smallest actually

fatal dose I have hitherto found recorded is $4\frac{1}{2}$ grains. The subject was a child of 4 years old, and death occurred in six hours. In this instance, however, the poison was taken in solution." The powerful effects sometimes produced by $\frac{1}{8}$, $\frac{1}{4}$, or $\frac{1}{2}$ a grain, lead us to suspect that 1 grain *might* produce death. but, as just mentioned, we have no recorded case to offer in proof. Buchner says, death may occur from the exhibition of from 1 to 5 grains. Hahnemann also says, 1 or 2 grains may prove fatal in a few days. Dr. Christison remarks, that this statement cannot be very wide of the truth.

Of course a *repetition* of much smaller quantities may prove fatal.

However, under certain circumstances, enormous quantities have been swallowed with very trivial effects. Some years ago I opened the body of a man who destroyed himself by taking arsenic, and I was informed by the friends, that, about a fortnight previous to his death, he made an attempt to destroy himself by swallowing a quantity of powdered arsenic, which they found, on inquiry at the druggists of whom it was purchased, to have weighed half an ounce. It was taken immediately after dinner, and the only effect produced was violent vomiting. Here it is evident that the distension of the stomach with food saved the patient's life; for, I presume, when vomiting commenced, the food acted as a kind of sponge, and cleansed out the stomach. This unfortunate individual repeated the attempt, and death was the result.

Antidotes.—On account of the frequency of poisoning by arsenious acid, I must notice the method of treating these accidents. Unfortunately we have no substance properly deserving the name of an antidote, though various agents have been proposed as such. Of course substances which envelop the poison, and in this way prevent the arsenic coming in contact with the stomach, cannot be properly regarded as antidotes. Charcoal, magnesia, the hydrated peroxide of iron, oil, albumen, milk (which becomes coagulated), and probably many other substances which at different times have been vaunted as antidotes, act only in this way.

Sulphuretted hydrogen, and the *sulphurets* (or hydrosulphurets), as the sulphuret of potash, undoubtedly effect a chemical change on the poison, but the resulting sulphuret of arsenicum is as active, or nearly so, as white arsenic; while the antidote itself, if taken in excess, acts as an energetic poison. *Lime-water* forms, with the arsenious acid, the arsenite of lime; which probably is somewhat less active than arsenious acid, on account of its less solubility.

As, therefore, we have no antidote on which we can rely, our first object must be to *expel the poison from the stomach.*—To effect this, we may give, if vomiting have not commenced, emetics of sulphates of zinc and copper, use the stomach-pump, and tickle the throat. If vomiting have occurred, it will be sufficient to exhibit diluents and demulcents, to facilitate the expulsion of the poison, and, in part, to moderate the effects. For this purpose lime water, sugared water, milk, white of egg and water, flour and water, or gruel, may be given.

Having removed the poison from the stomach, our next attempt must be to neutralise or *counteract its effects.* Unfortunately we have no counterpoisons, and, therefore, must treat the case on general principles. When the gastro-enteritis is marked, our principal reliance must be on the usual antiphlogistic measures, particularly blood-letting, both general and local, and blisters to the abdomen. One drawback to the success of this treatment is the great depression of the vascular system frequently present, so that the patient cannot support large evacuations of blood. Opium is a very valuable agent. Indeed Jäger seems to regard it in the light of a counterpoison. However, on this point he has probably taken a too exaggerated view of its efficacy; but it is undeniable that on many occasions it is of great service. If the stomach reject it we may employ it in the form of clysters. In some cases of arsenical poisoning constipation and tenesmus are present, and in such, benefit may be obtained from the use of mild laxatives, particularly castor oil.

The second *electro-negative* metal which I shall notice, is

ANTIMONIUM.

History and synonymes.—Although the sulphuret of antimony was known to the ancients, yet the *regulus*, or metallic antimony, was not known until the fifteenth century, when Basil Valentine, a German monk, published the method of procuring it. It is sometimes termed *stibium*; and is said to have derived its present appellation from αντι, *against*, and μονος, a *monk*; in consequence of its having proved fatal to some monks to whom Basil Valentine had given it with the view of fattening them, as he had observed that it greatly fattened some hogs to whom he administered it.

Native state.—Antimony is found native in the *metallic state* — in the form of *arseniet*, *oxide*, and *sulphide.* The last-mentioned one, commonly called the sulphuret, or sesquisulphuret, is that used for obtaining the antimony of commerce.

It was formerly imported from Hungary and Spain, but at present we are wholly supplied from Singapore, which receives it from Borneo. It is brought over as ballast to the vessels. I am informed that about 600 or 700 tons is the average annual importation.

Preparation.—We may divide the process for making metallic antimony into three stages:—

1. *Fusion.*—This process has for its object the separation of the antimonial sulphuret from its gangue, or matrix. It is effected by melting the native sulphuret in a covered crucible; in the bottom of which are several small holes, through which the fused sulphuret passes into an inferior or receiving crucible. The fused sulphuret is called *crude antimony.*

2. *Roasting.*—The fused sulphuret, or crude antimony, is roasted in a reverberatory furnace: by this process the oxygen of the air converts the sulphur into sulphurous acid gas, which escapes, and the metallic antimony into the protoxide of this metal.

3. *Reduction.* — The roasted sulphuret (now become a mixture of oxide and sulphuret) of antimony is fused with charcoal and carbonate of soda: the charcoal deoxidizes the oxide of antimony, while the soda reduces some sulphuret, forming metallic antimony and sulphuret of sodium; the latter of which, uniting with some undecomposed sulphuret of antimony, forms the double sulphuret of antimony and sodium.

Properties.—It is a metal of a silvery-white colour, having a fibrous or laminated texture. It is crystallizable; the primary form of its crystals being an octahedron. Its specific gravity is 6·436, according to Thomson; its fusing point 810° Fahr.; it is volatile. Its atomic weight is 64, and its symbol St.

Characteristics.—It is easily distinguished from other metals, by dissolving it in nitro-muriatic acid. The solution (which is chloride of antimony) throws down a white precipitate, called the *powder of Algaroth*, on the addition of water; and gives an orange-red precipitate of the sesquisulphuret of antimony with sulphuretted hydrogen, or the hydrosulphuret of ammonia.

Physiological effects and uses. — So long as this metal retains its metallic form it is inactive; but in passing through the bowels it sometimes becomes oxidized, and, in consequence, acts powerfully as an emetic and purgative; so that its operation is uncertain. Pills made of it were at one time exhibited in colic, under the name of the *pilulæ perpetuæ* seu *pilulæ emeticæ externæ*, because it was said they did not lose their virtue by passing through the alimentary canal; and at one time an emetic liquid was procured, by digesting wine in cups made of metallic antimony (*pocula emetica*).

In Basil Valentine's work, entitled the "*Triumphant Chariot of Antimony*," the following passage occurs, which favours the etymology of the word antimony already mentioned:—"If a farmer purpose in himself to keep up and fatten any of his cattle, as, for example, a hog, two or three days before let him give to the swine a convenient dose of crude antimony (*i. e.* sulphuret of antimony), about half a drachm mixed with his food, that by it he may be purged; through which purgation he will not only acquire an appetite to his meat, but the sooner increase and be fattened."

Oxides of Antimony.

Four oxides of antimony are described, namely, the *suboxide*, the *protoxide* (called also the sesquioxide), *antimonious acid* (sometimes termed deutoxide), and the *antimonic acid* (called peroxide.) Of these I shall notice the second and third only, the others not being used in medicine.

Protoxide.—This substance is found native under the name of *white antimony*, or *antimony bloom.* Various methods are in use for preparing it; but the simplest is to add water to the chloride of antimony (called in the shops muriate, or butter of antimony.) A white powder precipitates, which is called the *powder of Algaroth*, consisting of (according to Dumas)

Chloride of antimony	82
Protoxide of ditto	18
	100

If this oxichloruret be washed with a solution of an alkaline carbonate, the chloride is converted into protoxide of antimony; chloride of sodium or potassium will be left in solution, and carbonic acid escapes. The Dublin and Edinburgh Colleges order this oxichloruret to be washed with water merely.

Protoxide of antimony is composed of

1 atom antimony	64
$1\frac{1}{2}$ atoms of oxygen	12
	80

It dissolves in muriatic acid, and the solution of chloride of antimony thus obtained gives an orange red precipitate, on the addition of sulphuretted hydrogen.

This preparation is used in this country merely for the preparation of tartar emetic. It is a powerful emetic, and as such has been employed in medicine; but it is said to be variable in its operation. It has also been administered in agues and epilepsies: the dose of it is from one to five or six grains.

LECTURES

ON

DISEASES OF THE NERVOUS SYSTEM.

By M. Andral.

As published in the *Gazette des Hôpitaux*, with the approval of the learned Professor.

SOFTENING OF THE NERVOUS CENTRES.

This condition, whether it result from inflammation or not, requires to be treated of separately. The nervous substance preserves its form, but is softer than natural; in some cases it is transformed into something like bouillie—it is then soluble in water, which takes it up, and acquires a milky appearance. Sometimes the nervous pulp disappears, and the membranes alone remain, filled with an opaque serosity. Even the membranes sometimes disappear, at the same time that the cerebral substance undergoes a more or less remarkable change in its consistence: it may be infiltrated with serosity, injected with blood, have a mass of this extravasated into it, or certain purulent matter.

All these cases which I have just described, are not, however, attributable to the same causes. If we admit as the agent of the softening a disturbance in the nutrition, evinced by deposition of fluid in the more consistent parts—if we then represent inflammation as producing a similar effect—we shall undoubtedly be correct; but it would be a mistake to say that those were the sole causes of softening, for there are certain others, although we are yet in the dark with respect to them.

Softening has been met with at any period of life—from the earliest to the most advanced; but it would appear to be most common in elderly persons. As to its seat, this may be either in the brain or spinal cord; it may also be either partial or general: most frequently it is the former. Thus we have the hemispheres of the brain, the cerebellum, the mesocephalon, &c., separately affected. The disease may in the first instance attack the internal parts of the brain, without implicating the convolutions; in fact, we sometimes see the most internal layers, those forming the lateral ventricles, and even the cornu ammonis, affected. The septum lucidum and corpus callosum may be simultaneously affected, but the former, and the vault of these pillars, are softened more frequently than the corpus callosum. The spinal cord is not exempt: it may be affected in whole or in part: sometimes the anterior column, sometimes the posterior, is alone affected. The symptoms vary according to the seat and intensity of the disease: it is therefore necessary to study it in the different parts to which we have above alluded.

Softening of the brain.—When the hemispheres of the brain are the seat of softening, various disturbances become manifest. The intellect is usually weakened, even at the onset, and soon becomes almost abolished, or at least continuing feeble and obtuse. Occasionally delirium has been observed: this takes place when there is a complication of meningitis with softening. The affection of the powers of motion are pretty constant, and comes on either suddenly or gradually. Thus the patients experience a progressive weakness of the limbs, going on to actual palsy, or this state may supervene at once, without any premonitory symptoms. When to this paralysis are added convulsions, there is reason to believe that there is hæmorrhage in addition to the softening. These muscular contractions are seen in different parts; sometimes they are confined to one limb, sometimes to all: even the fingers or toes may be exclusively affected. In some cases the affection of the muscular system is general, assuming the aspect of tetanus, epilepsy, catalepsy, &c.

Occasionally the motive powers undergo no disturbance, but such cases constitute rare exceptions to the general rule.

The most common lesion of sensibility consists in headache, the precise seat of which varies; sometimes it corresponds in the most striking manner with the actual seat of the disease, but this is by no means constant; the pain also varies much as to its intensity, permanency, and times of return; occasionally it is periodical. Sometimes it ceases entirely, while the disease goes on; at others, it attends the malady throughout its whole course.

The digestive and circulating systems may remain quite undisturbed. In some the pulse is accelerated. When the breathing once becomes embarrassed, this generally continues to increase, and the patient dies with stertor or asphyxia. One form of the disease (a rare one) is ushered in by a sudden loss of consciousness, with hemiplegia, and it is then extremely difficult to distinguish softening of the brain from apoplectic hæmorrhage. Another form is also characterized by sudden loss of consciousness, but accompanied by muscular contractions, which assist the diagnosis; in a third form, there are convulsions; in a fourth, the intellect is entire, but the muscular movements affected, giving rise either to palsy or contractions. In a fifth form of the disease there is nothing remarkable as regards the intellect, but the motive powers are weakened, and this goes

on progressively increasing. Lastly, softening of the brain may take place without any external symptoms which are appreciable; in such case, (which is very rare) the progress of the disease is slow.

Whatever be the form of the disease, its most constant termination is death, which may take place within a few hours, or be postponed for many months. M. Lallemand has laid it down, that the mode in which softening of the brain admits of the curative process, is by the part becoming indurated.

RAMOLLISSEMENT OF THE SPINAL MARROW.

The history of this affection in many respects resembles that of myelitis. It is either general or partial, which latter state is the more common; and, accordingly, we meet with softening of the anterior or of the posterior columns, of the superior or inferior portions, or of the grey or the white substance, separately; and hence disorders of various kinds.

Disorders of the intellect may be present or not, according as the parts possess more or less of their natural firmness.

Disorders of motivity.— In general the power of moving is compromised; yet there have been cases in which ramollissement existed to a considerable extent without affecting the motive powers. Dr. Janson, of Lyons, has published a case in which the spinal marrow was in a state of bouillie for the most part, yet the patient had no impediment in his powers of moving. M. Velpeau has also cited a case in which the cervical portion of the cord was morbidly softened, yet motivity was nowise impaired. In animals, too, which have the spinal marrow interrupted, or liquid, we do not find the moving powers injured. And do we not know that the fœtus, during uterine life, has free power of motion, although its spinal cord at that period is far from having that consistence which it acquires subsequently? M. Rullier relates a case where there was considerable ramollissement, but a communication was maintained between the upper and lower portions of the cord merely by a slight though firm slip: there was no exact relation between the part of the cord affected and the parts of the body capable of being moved: the patient could walk, but his arms were paralysed and contracted.

These cases, however, must be considered only as exceptions: the general rule is, that the greater the ramollissement, the more the motive power is affected; and the affection will be the more marked if it be the anterior columns that are softened. The effects of the lesions of motivity are very various; sometimes they amount to no more than a simple diminution of the moving power, sometimes to a complete abolition. It is not unusual to see the lower extremities paralyzed, and the upper also, at the same time. Nor are the different muscles of the trunk, the bladder, the rectum, or the respiratory muscles, free from danger.

This paralysis, whatever may be its situation, will come on gradually in some cases, whilst in others it will appear suddenly, and without any warning. Whether there be paralysis present or not, contraction of the limbs may occur, and that amounting in some instances even to convulsions. All these several lesions may in turn take precedence of each other; their order is not invariable.

Disorders of sensibility.—These are marked by exaltation, depression, or abolition; or, indeed, by perversion of the faculty of feeling. As in myelitis, but less frequently, the patient may experience a pain along the spine, which will dart occasionally towards the upper extremities. A sensation of cold, tinglings of the extremities, are in some cases the first symptoms. I have seen a lady, who, for two years, felt every day a coldness, followed by a pricking sensation, and which were succeeded by a sort of convulsive motions. There was no pain or other inconvenience; but at the end of the two years there were contractions and paraplegia, and the patient died.

A very limited ramollissement, having its seat in some point very high up in the spinal cord, may give rise to all the disorders just mentioned. Dr. Ulric, of Berlin, has given a case in which the pyramidal and olivary bodies, as well as the left half of the pons varolii, were softened, and the restiform bodies slightly coloured red. The patient felt the first symptoms of his disorder at 18, and died at 26. The progress of the malady was as follows:—For six years a sluggishness, constantly increasing,—the limbs heavy; here was a diminution of motivity. At the end of six years, the sight failing, diplopia, strabismus; soon after, greater difficulty in walking, the gait vacillating; the feet as if glued to the ground at every step. The patient then suffered a violent cold, then a general numbness, with paraplegia increasing and subsiding for a considerable time. Cramps next came on, affecting the extensor muscles of the geat toes. A year after, tetanic spasms seized the muscles of the back, and the paraplegia was converted into paralysis of both upper and lower extremities. The paralysis ultimately became general; deglutition and respiration were impossible, and the patient died with his intellectual faculties unimpaired.

I have said that myelitis may, by the influence which it exerts over the different

acts of nutrition, simulate to a certain degree the disorders incident to that function. The same is true with respect to ramollissement of the cord: and it may be acute or chronic.

Progress of ramollissement.—In the acute form, so rapid is its progress that death sometimes occurs as if from a thunderstroke; sometimes it takes place after some hours, with coma. In some subjects, a few days elapse before coma sets in, but it is preceded by convulsions, contractions, palsy (more or less general), and asphyxia generally closes the scene. In the chronic form, the disease may susbist for eight or ten days, without any well-marked symptoms.

Prognosis.—Whatever be the form the symptoms assume, it is more than doubtful that they will terminate favourably. There are successful cases recorded, I am aware; but who does not know how easy it is to be deceived as to the real nature of the complaint, in disorders of the nervous system? Death occurs, as in myelitis, sometimes with exhaustion, sometimes through failure of the respiratory powers, and not unusually by becoming complicated with some inflammation more or less severe, and often chronic.

Treatment.—For all the varieties of ramollissement we have but one mode of treatment; which, however, is capable of being varied, according to circumstances. Is it complicated with meningitis, and are there symptoms of reaction? blood-letting must not be neglected. But suppose there are no such symptoms—on the contrary, languor and debility? why then the system must be supported: tonics must be administered—quinia, iron, &c. Against the actual ramollissement itself, art can do nothing.

INDURATION OF THE NERVOUS CENTRES.

This disease, which is rather rare, may be either general or partial. That form of induration which affects all the nervous centres at once, is very uncommon: not so, however, that which presents induration limited to certain points.

Anatomical characters.—Independently of the seat and extent of the affection, the indurated parts of the brain resemble, a good deal, brain which has been macerated in nitric acid. In a somewhat more advanced degree, it takes the consistence of wax, or Gruyere cheese. In some cases, still more marked, the brain is glistening and elastic, like fibro cartilaginous texture, but without being actually transformed into it.

Various other changes of structure may be associated with this: for instance, there may be hyperemia or anemia; and, in this latter case, the grey substance becomes white. The induration sometimes coincides with hypertrophy, or with atrophy of the organ: a phenomenon which is also sometimes observed in the liver. But the disease under consideration may exist without any of these lesions. Sometimes the parts immediately around hæmorrhagic deposits, accidental formations, &c. have been found in a state of induration.

No age is exempt from this change: I have seen it in an infant of twenty months; but advanced life is nevertheless the most subject to induration of the brain. It is chiefly met with in the convolutions; but in whatever degree it may be present, it may influence the other parts of the brain. The white substance may be invaded by it, and a case has been related of partial induration of the cornu ammonis. The same lesion has been met with in the cerebellum and spinal cord; even the meninges have been seen thickened, adherent, and indicating the signs of this disease.

Induration of the cerebral hemispheres occupies these parts either in whole or partially. In the latter case one would expect the symptoms to assume a chronic character; but observation proves that the induration may be very acute under such circumstances, although it is not easy to understand this; and the brain then presents the disease in its first degree. MM. Bouillaud, Godet, &c. have seen examples of this; and the accompanying phenomena which they observed were those of the *ataxic* fever of Pinel.

General induration of the hemispheres in the chronic form is but seldom met with: I know of only three authentic instances of it. In these the symptoms were chiefly manifested in the powers of movement and intellect; in one there was idiocy, and in the two others great dulness; in two there was epilepsy; in the third no epilepsy, but gradual weakening of the limbs, and paralysis, alternated with spasmodic contractions. One died at 22 years of age; another, who was first seized at 41, died at 48.

Acute induration of the hemispheres is not common in the partial form; in the chronic state it gives rise to various disturbances. In some there are spasms; in others paralysis. Epilepsy comes on in a considerable number of cases; and in others the intellect is affected. M. Lallemand relates a case where embarrassment of speech alone was observed as coincident with induration of the lobes of the brain.

MM. Serres and Gall quote some cases of induration of the cerebellum; and the latter asserts that in these the genital organs were affected; but I have met with this disease wherein no symptoms re-

ferrible to the sexual system appeared. The spinal marrow is susceptible of induration, either general or partial, and the symptoms vary according to the extent, seat, intensity, &c. of the morbid change of structure: thus we may have paralysis, sometimes of the upper extremities, sometimes of the lower, and occasionally of both upper and lower together.

Treatment.—Here the insufficiency of our art must be acknowledged.

CHANGES IN THE SECRETION OF THE NERVOUS SYSTEM.

Lesions in the secretions may take place in any portion of this system. I shall first speak of those affecting the brain. Cerebral œdema is characterized by a superabundance of serosity,—the brain is infiltrated with it. A serous effusion into the arachnoid or into the ventricles, a state of hyperemia or of anemia, or of softening of the cerebral substance, may exist with cerebral œdema. This disease, of which some cases have been recorded, has not hitherto been observed except in the hemispheres and white cerebral parts of the brain.

The *causes* of the affection vary. Thus we see some who, having previously been in good health, are suddenly seized with œdema of the brain; at other times it manifests itself towards the close of a chronic disease of any organ, but more especially of the brain. It is not uncommon at the termination of softening, and it may show itself singly, constituting an entire disease. Acute or chronic, such is one of the forms presented by œdema of the brain.

More rare in the acute than chronic forms, in which last it is pretty frequent, the affection of which we speak manifests symptoms which at first seem to indicate apoplexy, and indeed it is very difficult to draw the diagnosis. Thus we have coma, loss of consciousness, general and complete relaxation of the limbs. But the resemblance between the two diseases is still more complete when the lungs are implicated, and the breathing becomes stertorous, which is by no means uncommon. In these cases, death may take place immediately, or not till some days after the attack. It is to this affection that the name "serous apoplexy" was formerly given. There is, however, another kind of serous apoplexy, which consists in effusion of serum in the arachnoid membrane.

Is it possible, in the present state of our knowledge, to distinguish between sanguineous apoplexy and œdema of the brain? It certainly is so, except in those cases where the cerebral hæmorrhage is in its highest degree. It is then impossible to say whether we have to do with a congestion, an apoplexy, or an œdema of the brain.

Cerebral œdema has been seen to follow the sudden disappearance of another form of dropsy. M. Dance has related an instance in which it supervened upon ascites.

In the chronic form, this disease is chiefly met with in old people. The individuals, under such circumstances, experience a gradual diminution of the intellectual faculties; their corporeal sensibility decreases, and the motive powers become progressively lessened. The same changes, it is well known, take place merely from advanced age, but they are then much less marked. On examination after death, the brain has sometimes, but not always, been found infiltrated with serum. Certain forms of dementia, the cause of which had been till then unknown, have been explained by the presence of this change.

Treatment.—Nothing very precise can be said on this head; whether acute or chronic, cerebral œdema ought to be treated on general principles, like other kinds of superabundant secretion. Sometimes bloodletting is indicated, particularly where there is reason to apprehend formidable congestions, hyperemia, &c.; sometimes revulsives are required, and are frequently of service, more particularly when applied to the legs, but for this purpose they must be used frequently and freely. The employment of mercury, either in friction or internally, is sometimes of advantage; and the secretions, particularly that of the skin, must be duly attended to.

Accidental productions developed in the nervous centres.—The induration of the nervous centres may be so altered, that morbid productions become substituted for the nervous substance. These productions are very various: they may be tuberculous, cancerous, calcareous, or consist of cysts, hydatids, &c.

Tubercle is one of the accidental productions which has been most frequently met with in the brain. It may be situated in any portion of the encephalon: thus we may have it in the cerebral hemispheres, particularly in the portion lying above the ventricles; in the peduncles, and in the tuber annulare,—any of the lobes of the cerebellum. It has also been met with in the pituitary gland, and in the medulla oblongata; but I know of no instance of tubercle being found in the white cerebral mass of the brain. Exterior to the cranium it may be observed in any part of the spinal cord, but more frequently in the cervical than in the dorsal or lumbar regions. In this part the grey and white

substance are both susceptible of the tuberculous degeneration.

The anatomical characters of tubercle here differ in nothing from those presented by it elsewhere. The size of the tubercle may vary from that of a millet-seed to a hen's egg, and even more; for an entire hemisphere has been found to have undergone this change. Sometimes there is but one tubercle,—sometimes there are many; and when numerous, they may either be aggregated in one point, or disseminated. Sometimes they are confined to one hemisphere, sometimes they implicate both. The nervous substance around the tubercles is not always of the same character: occasionally it is healthy; in others it presents various changes, which are either chronic, such as softening,—or acute, such as hæmorrhage. When the membranes participate in the diseased condition, they become thickened, adherent, infiltrated with blood or with serum, in a manner analogous to what we see in the pleura after inflammation of this part. A copious serous effusion into the membranes may result from tubercles; there is then an acute hydrocephalus, abundantly common in children, and of which they frequently die.

When the nervous substance of the encephalon is tuberculous, the same kind of degeneration is generally met with in other parts of the animal economy, more particularly in the lungs. This is a fact of which M. Louis and I have assured ourselves: but it is necessary to observe, and indeed it is a kind of law, that in persons under fifteen, and who are affected with tubercles of the nervous centres, the lungs remain entire till then, whilst above that age the tuberculous change is coincident in the brain and respiratory organs.

External injuries and attacks of inflammation may be the occasional causes of tubercles, but can never with justice be looked upon as the primary causes. Tubercles in the brain become developed silently and slowly, without ever being able to say to what their presence ought to be attributed; the causes are the same as those of tubercles in general. All ages are not equally exposed to this disease; it attacks children particularly, after the first year, and is frequently seen from 3 or 4 years of age up to 15. After this it again becomes more rare, but it has been seen at 40, 50, and 60 years.

The symptoms of tubercles in the brain are not always identical. In some cases no deranged function or other change announces their presence. In a child enjoying perfect health, for instance, we may have suddenly some formidable disturbance of the nervous system; while in another it is in the midst of indifferent health that the nervous disturbance first shews itself; then a disease which previously had appeared trifling becomes serious. It may happen that the symptoms indicative of peril are displayed but once, and followed by immediate death. One of the most frequent symptoms consists in headache of greater or less obstinacy, and which sometimes becomes periodical. It is a kind of hemicrania which slowly wears out the patient. The power of locomotion may be implicated, and the affection of this is either continued or intermittent, and the disorders may be convulsions of epileptic character, or paralysis, which last is usually continued, and shews itself in different parts according to the form of the disease. The intellect is but rarely affected.

With respect to the nutritive functions, the most remarkable circumstance is obstinate vomiting.

When the tubercles are in the hemispheres of the brain, they are usually accompanied by headache, paralysis, and intermittent convulsions, When they are in the mesocephalon they have no especial signs. I ought, however, to add, that M. Larcher has observed true chorea under such circumstances. Tubercles in the cerebellum are far from rare; in twenty such cases the following phenomena were observed. In 17, disease in the back of the head was the principal symptom; in I there was vertigo, but without loss of consciousness or convulsions; in 7 there was loss of sight; in 5, disturbance of intellect; in 8, paralysis; in 7, violent convulsions; in 5, progressive weakness; in 10, vomiting; in 1, sexual disease (case published by M. Monteau.) In all, the disease made slow progress, and assumed a chronic form; sometimes with acute attacks interposed. After a certain time either the patient sunk under some other disease, or died of the effects which the tubercles produced, and convulsions, with coma, formed the conclusion.

Tubercles of the spinal cord, like those of the brain, are particularly prone to be developed in infancy. The symptoms are such as either irritation or compression of the cord might produce, and consist of various lesions of sensation and motion, according to the part which is diseased. There are some cases wherein hemiplegia takes place, although the centre of the spinal cord was the seat of the morbid change. After a time respiration and deglutition become embarrassed, and death is the consequence. In one case the symptoms resembled those of hydrophobia: the patient died convulsed, and, on post-mortem examination, tubercles were found in the upper part of the spinal marrow.

As to treatment nothing satisfactory can be said. I have seen derivatives, counter-irritation, purgatives, mercurial frictions, &c. tried, but it must be confessed, all without success.

REPORT OF CASES

TREATED WITH

VARIOUS PREPARATIONS OF IODINE.

Presented to the Harveian Society,

By Wm. Maclure, Esq.
Surgeon, one of the Presidents of the Society.

SECTION I.—LOCAL DISEASES.

Case I.—*Hernia Humoralis.*

Mr. L., betwixt 60 and 70 years of age, had a large tumor in the left compartment of his scrotum. Whilst he was riding, on the 18th September, 1829, his horse, taking fright at some object on the road, suddenly reared, and the tumor, driven with violence against the pommel of his saddle, was crushed by the superincumbent weight of his body. He was taken home, and I was sent for. I found him sick, pale, cold, faint, and complaining of great pain in the tumor. The scrotum exhibited a huge and frightful mass, enormously swollen, and very dark from ecchymosis.

In the first place I ordered cordials for the stomach, and hot fomentations to the part injured. After the first shock of the accident had gone off, and the pulse had become fuller, I ordered leeches to be applied to the scrotum, the warm fomentations to be afterwards resumed, an aperient, and a warm poultice to be applied to the part at bed-time. These and similar means were persevered in for the next few days, until the swelling, pain, and ecchymosis, caused by the accident, had subsided, and the part had resumed the appearance which it previously exhibited. As I had never seen the tumor previous to the late injury, I now examined it, to determine the nature of the original swelling, and whether any thing might be done to reduce it.

I found the left testicle to be enlarged to at least twenty times its normal size; it was hard, and still tender on pressure; there was pain in the loins, and a little fluid was felt in the *tunica vaginalis testis;* but it was evident that fluid formed but a small part of the tumor, and that it consisted principally of interstitial additions to the body of the testicle. Nor did it appear to be of a malignant nature; it seemed to be nothing else than a simple hernia humoralis, of long standing, complicated with a degree of hydrocele. It had commenced about two years before, without any obvious cause; but probably some forgotten blow may have given rise to it.

With regard to treatment, after having tried to discuss the swelling by inunction with the camphorated mercurial ointment, which did no good, but rather annoyed the patient, by giving him a sore mouth, I began (17th October) to cause to be rubbed in, an ointment composed of ℥j. of the hydriodate of potash, and ℥vij. of simple cerate, well rubbed together. I also directed him to take, *ter die*, a draught made up of ten minims of the tincture of iodine, and water. These were continued till the 27th, when the draughts were laid aside, as at that time little good had been done, and the patient seemed willing to abandon all remedies in despair. I, however, did not think that the iodine had had yet a fair trial, and was lucky enough to persuade him to go on with the *local* treatment a little longer, though I failed to induce him to persevere with the means meant to stimulate the *general* absorbent system. It was fortunate he did persist; for in less than a fortnight a sensible diminution in the size and hardness of the part took place. This encouraged him to proceed; the declension in size steadily went on, the natural shape of the organ began to be developed, and without much farther trouble or delay it resumed its natural magnitude, and its proper feeling on pressure.

The fluid which had been thrown out also disappeared, and though I have attended the same gentleman frequently for other complaints during the last six years, he has never once alluded to the state of his testis; from which silence I infer that it remains as it ought to be.

Case II.—*Tumor in the Ham.*

A boy came to me with an indolent tumor, of the size of a pullet's egg, in

his right ham. It was exactly in the situation of a popliteal aneurism, but there was no pulsation in it; and I readily concluded that it was nothing of that sort. Here again I tried the ointment of the hydriodate of potash; and by persevering in the use of it for a few weeks, the tumor went away.

Case III.—*Bronchocele.*

I have seen several instances of this affection removed by the combined use of the tincture of iodine, and of the ointment of the hydriodate of potash. The last case I had was that of a young woman in the household of the Lord Chancellor, in which the thyroid gland had reached a considerable size, but which is now happily reduced to its natural dimensions.

Case IV.—*Serous Tumor.*

Mr. A. fell from his horse, and was bruised on the cheeks, about the eyes, nose, &c., and his back was sprained and discoloured. The right eye was closed, and the whole of that side of his face was black and swollen. He had great pain of back when he attempted to move. Leeches and fomentations were applied to both head and trunk repeatedly. Benefit was derived from these means. The case went on without any thing remarkable occurring for more than a week, the swelling and discoloration of the face going off, and the pain of back on moving getting less and less. Whilst using friction, however, with a stimulating liniment, his groom discovered a tumor on the injured spot of the back, and my attention was then called to it.

Upon the right side of the lumbar vertebræ there was a tumor exterior to the longissimus dorsi muscle, which plainly contained a fluid. There was no pain on pressure, no heat, no throbbing, no redness; yet a fluid was felt to move easily within a kind of cyst, which cyst, however, was not full. I determined to open it, and see the nature of its contents. I accordingly made a puncture at its most depending part. I found the wall of the cyst thicker than I anticipated, and was obliged to make another thrust with my lancet before any fluid came. A thin limpid serum first appeared, which was followed by one of a bloody hue. About two ounces in all were discharged, and then the cyst seemed to be empty. Pressure was applied for some days. When looked at again, the wound had healed, but there was still a little fluid in the cyst. I then ordered the ointment of the hydriodate of potash to be rubbed into the part night and morning, and the pressure in the intervals to be continued.

Under this treatment the fluid was gradually absorbed, and the natural appearance of the back restored. Has a tumor of this sort, arising after an injury, ever been described before?

Case V.—*Enlarged Ovarium.*

The next case which I have to detail, as perhaps illustrative of the effects of iodine on the absorbent system, is one of still greater importance than those I have already described—viz. one of an enlargement of the left ovarium in a young female.

The subject of it had been growing larger about the abdomen for upwards of twelve months, until at last she exhibited the appearance of one in the fifth month of pregnancy. The catamenia, however, were regular, and her moral character was unimpeachable. Upon examination the swelling was seen to be confined principally to the left side of the abdomen; and, upon pressure, it was rather obscurely felt to be a circumscribed tumor, occupying the situation which an enlarged ovarium usually does. In general there was little pain felt on pressure; but the tumor occasionally gave rise, in the progress of its growth, to obstructions of the bowels, attended by severe spasms, distention, pain, sickness, and the like phenomena. It was after the subsidence of one of these attacks that I advised her to try the effects of rubbing the ointment so often mentioned over the tumor, and of using iodine also internally. Dr. Locock's opinion at this period was also solicited, as well as that of Dr. Roe, and both these gentlemen coincided in the advice which I had given her. The iodic treatment, as above, was continued for about a fortnight, with, as the young woman supposed, some benefit; but, I confess, I could not discover any diminution of the tumor.

Returning one evening from a meeting of this Society, I received an urgent message to visit this patient, as she had been taken very ill. I found her in the

greatest agony, complaining of violent pain in the abdomen, apparently of a spasmodic nature, and resembling, though it was more severe, the attacks of pain she had frequently before experienced. I ordered for her antispasmodic and purgative medicines, hot fomentations, and the use of opiate enemata, with a view to mitigate the urgency of the symptoms. The bowels having been emptied, and a powerful anodyne given, I left her for the night, somewhat relieved. When I called next morning I was told she was much better, that the swelling in her side had greatly subsided, and that during the night a large quantity of dark-coloured urine, of a very fœtid odour, had been voided. When I examined the part, I was greatly surprised to find that the tumor had almost entirely disappeared, and that, though there was still some pain on pressure, and some swelling, a great change for the better had certainly taken place. The fluid had unfortunately not been preserved, so that no examination of it could be made.

The patient remained for some time in a very weakly state, and there were sometimes returns of acute pain in the situation of the late tumor, requiring leeches; but, upon the whole, her recovery went on very favourably. As soon as these pains had subsided, and the leech-bites were healed, the ointment was ordered to be reapplied, until all hardness and swelling should disappear. This, I understand, has now taken place, but I have not had an opportunity very lately of ascertaining the fact by an examination.

Instances of as sudden subsidence of ovarian tumors, as happened in my case, have, I believe, been known to take place. According to Dr. Mason Good, "Dr. Baillie knew of one instance in which the disease disappeared spontaneously, after it had existed for nearly thirty years, and the patient remained in good health permanently*." It is not stated by Dr. Good whether, as in the case above detailed, there was any unusual flow of fluid from the bladder, concomitant with the subsidence of the tumor.

Besides this case I have heard of some others, in which the tumor as suddenly, though more inexplicably, disappeared; of one, indeed, where it had been determined on to remove the tumor by an operation, in accordance with Mr. Lizars' proposal; but when the patient was laid upon the table for that purpose, no tumor was to be found, and no one could tell whither it had gone! The result of my case, and the way in which it appeared to go, may probably be thought to account for the phenomenon.

Did the iodine contribute in any degree to the agreeable result? Perhaps not.

* Study of Medicine, vol. v. p. 432.

SECTION II.—CONSTITUTIONAL DISEASES.

Case VI.—*Hepatization of a Lung.*

Mr. J. F., aged 18, had symptoms of fever; his head was more than usually affected; there were severe headache, and considerable delirium. Leeches were applied to the temples; an emetic, a purgative, and saline diaphoretics, were successively and promptly administered. By these means the headache and delirium were relieved. He now complained of pain in the scrobiculus cordis. Leeches were applied here also, with benefit. Pain, accompanied by cough, afterwards came on in the right side of his chest. He was bled from the arm to ℥xij. and as much more was taken from the part affected, by cupping. Calomel, antimonials, with saline draughts, were constantly given. The pain of side was by these means removed, but cough, dyspnœa, with inability to lie upon the right side, and a dull sound upon percussion over that side, remained, shewing that a solidification of the right lung had taken place.

An eminent physician was associated with me in the treatment of this case. A blister was applied to the side affected, and the part was kept discharging by the use of the ung. sabinæ. Calomel with digitalis was given; but, in addition to these, Dr. C. consented that we should make trial of the tincture of iodine, given with other things in the shape of a draught, instead of the salines hitherto administered. Under this treatment the right side soon again became resonant, and the patient's power to lie upon it was regained. His cough also, and dyspnœa, went away, and his pulse fell to 72; his appetite returned, and, in short, he appeared to be quite convalescent; but, unfortunately, just a day or two before his intended removal to the country for the restoration of his

strength, he went out for a drive one rather cold day, in an open carriage. This produced great, though not fatal, mischief. All the symptoms of consumption of the most rapid kind, except the *permanently quick pulse*, set in, and produced the utmost alarm for his safety during many weeks. Violent cough, with a copious expectoration, great shortness of breathing, night sweats, and much emaciation, afflicted the patient, and alarmed his friends. The pulse, however, was seldom more than 84 in bed, and never more than 100 out of it; so that, upon the principle which I advocated when detailing J. Jones's case*, I never abandoned the hope of Mr. F.'s recovery.

The result justified my prognosis. After a great deal of treatment, which it were irrelevant here to detail, he recovered perfectly, and is now a remarkably stout young man, upwards of three years after the attack.

John Jones is also alive and well, and at present fills the useful though humble situation of a waiter at the University Club, Pall-Mall East. This interesting fact I think it of some importance to record, now five years after his recovery from consumption, as we all know how much scepticism as to the possibility of such an event was expressed at the time†.

Our associate, Mr. Barker, has had a similar case, equally unpromising in its appearance, in which a fatal prognosis was delivered by the physician in attendance. The pulse, however, was not *permanently rapid*; and, founding upon this circumstance alone, Mr. Barker ventured to differ in opinion from his friend. By judicious treatment the young gentleman recovered, and is now perfectly well.

Case VII.—*Marasmus.*

The Hon. Miss ——, aged 9 years, in the spring of 1835 began, from being a healthy lively girl, to fall off. She became dull; she lost flesh; she was pale; her tongue was red about the edges, loaded in the centre; she had but little appetite, and her bowels were confined, attended with some inflation. To combat these symptoms I at first gave her mild laxatives, composed of the hydr. cum creta, and the pulv. rhei. The motions were at first dark and offensive. After these had become more natural I commenced giving her four grains of the iodide of iron daily, in the form of two draughts. Each of these had two grains of the iodide, seven drachms of camphor mixture, and one of simple syrup,—the formula originally recommended in this Society by Dr. A. T. Thomson. The laxative powder, as above, was continued every second night, to keep the liver and bowels active. Under this plan, in the course of two months she was quite well, her mother, Lady ——, at the conclusion of the treatment, having been pleased to remark, that I had "wrought a miracle upon her;" an observation which, if I were at liberty to name the noble lady who made it, would be esteemed a valuable testimony to the merits of the iodide of iron.

Case VIII.—*Chlorosis.*

I have seen the best effects arise from the use of the iodide of iron in cases of chlorosis. In one remarkable instance, where the symptoms were manifested in an aggravated form, consisting of great debility, dulness of spirits, a waxy paleness of the countenance, great lethargy, quickness of pulse, loss of appetite, palpitations, shortness of breathing, confined bowels, with paleness, thinness, and deficiency of the menstrual flux, I succeeded in restoring a very good state of health to the young lady, by means of a three months' course of this substance. As the liver in such cases is generally sluggish, and the bowels much inclined to be costive, I gave, along with two grains of the iodide three times a day, almost every night a pill, composed of the compound extract of colocynth, and a minute quantity of the pil. hydr. Carriage or other exercise in the open air, a nourishing diet, and a regulated allowance of wine, were also enjoined.

I may here remark, that combined with iron only have I found the iodine to act the part of a tonic; at the same time I must also state, that I have not seen it, under any form, produce that emaciation which the early experimenters with iodine attributed to it.

Case IX.—*Impetigo.*

Master F., about six years ago, when he was only a year old, became affected, after shewing some febrile symptoms,

* Vide Med. Gaz. vol. xiii. p. 113.
† Ibid. vol. xiii. pp. 209, 290.

with a psydraceous eruption upon his chin, attended with great itching and the discharge of an acrid fluid. The spot was at first small; but it gradually enlarged until it covered the whole chin, and surrounded the mouth.

When I first saw him, about four years ago, the eruption showed all the characteristics of *impetigo figurata*. The pustules were small and numerous; they arose upon an inflamed base; they were attended by the most distressing itching, and the discharge was thin, and so acrid, that it produced a similar eruption upon any point which it came in contact with. Thus, the child's bosom became largely affected by the matter from his chin. In the hams there were two very large patches, and latterly the disease on the face extended upwards, nearly as far as the zygomatic arch on either side. The hands, especially the surfaces betwixt the thumbs and forefingers, were covered with it. Upon the whole, the child exhibited a very unpleasant appearance to others; and as for himself, both night and day, for several years, he was kept, by the extreme itching, in a most deplorable condition. He was dull, irritable, anxious; his mind, from the constant annoyance of the disease, and its long continuance, seemed to be less developed than it ought to have been at his age; and the growth even of his body seemed to be arrested. The "vehementius rodit" of Celsus* was painfully experienced in this unhappy case; for at night especially the itching was so great, and the desire to scratch it so irrepressible, and withal so hurtful in its indulgence, that his parents were obliged to gird his hands and arms in a kind of strait-waistcoat, to prevent him from scratching, and to give him anodynes, to lull, if possible, the tingling. In this state the child continued for upwards of three years, "all seasons and their change" seeming to pass over him without other effect upon his disease than to increase it. The usual routine of lotions, ointments, purgatives, &c. &c. was of course strenuously gone through; every thing was frequently given up in despair, and as often resumed, with some modification, when the symptoms were at any time more than usually distressing, but all to no purpose. Fowler's solution had a fair trial; at first apparently with benefit,—at last with none. It was then attempted to change the action of the parts by rubbing a pencil of lunar caustic upon them, but with no success. Dr. Green's sulphur baths, so powerful in many forms of cutaneous disease, were employed for a great length of time, with only temporary advantage. At length the redoubted Morison's pills were called in to our aid; but quackery in this instance, not soon, but after a long trial, was obliged to confess itself as powerless as science had been. Just at this juncture, when every thing was about being given up as useless,—when the disease was raging at its worst, and had resisted all our known resources,—when the child was tormented night and day with the intolerable itching of his face, chest, and hams, tearing them whenever he could get at them, till he made them raw and bloody,—when his temper was in the highest degree irritable, his intellect clouded, his growth stunted, his education neglected, and his parents actually wishing him dead, if such were the will of Providence, rather than see him continue in his then condition;—it was just at this gloomy juncture I was lucky enough to observe a short paper in the MEDICAL GAZETTE*, written by a gentleman signing himself "C." detailing the practice of Dr. Wilson, of the Middlesex Hospital, in various forms of cutaneous disease. In that paper are four cases of obstinate skin diseases described, all of which were cured by the use of an ointment formed of pure iodine ℈ss. and hydriodate of potash ʒss. rubbed together, and afterwards combined with ℥i. of lard. From Dr. Wilson's success I was induced to try this ointment in Master F.'s case; but the strength above mentioned was found to be too great, the smarting it produced having been intolerable. Upon this I diminished the active ingredients one half by doubling the quantity of lard, and, though this still smarted, it was not wholly unbearable. The parts were ordered to be smeared morning and evening with the brown ointment thus made; purgatives were given, and an issue was formed in the neck by means of a blister, and dressing the sore with the unguent. Sabinæ.

In a short time the good effects of this practice were manifest; the itching

* A. Corn. Celsi Med. Lib. v.

* Vol. xiii p. 360.

diminished, the discharge lessened, and the eruption ceased to extend itself. It was upon the 9th December, 1833, that the iodine was first employed, and before the beginning of February, 1834, the disease was cured; though I continued using the ointment for some time after all appearance of disease had ceased, fearing it might recur. Upon the 3d March, my notes state, that "the skin of the face has resumed its natural softness, smoothness, colour, and soundness, whilst that of the hams, breast, and hands, is in the same comfortable condition. The intellect of the boy, too, seems to have made a sudden spring forwards, as if eased of a heavy burthen; for now, instead of being the peevish, irritable, anxious, tormented and tormenting being, he was before, he has become a fine, lively, and clever fellow, with all the buoyancy and playfulness natural to his age."

Before concluding this account of the case, I may state that the subject of it has ever since remained quite well. Sometimes during easterly winds, a slight tendency to the disease may shew itself, but it soon is checked by a fresh application of the ointment.

Case X.—*Venereal Eruption (?).*

A gentleman who had had no primary symptoms for twelve years, and who in the meantime had married and was the father of a healthy family, became, in the spring of 1834, affected with an extensive eruption upon his shoulders, arms, chest, &c. which itched excessively; but which, in all other respects, resembled the eruption of secondary syphilis so closely, that I had but little hesitation in prescribing for him a combined course of mercury and of sarsaparilla. This was continued for some time, but at length I was obliged to devise something to allay the itching, which was so great, especially at night, as frequently to deprive my patient of sleep. The ointment which I had employed with such success in the case of *impetigo* was naturally suggested to my mind,—and I tried it in the present one. I also added to the sarsaparilla the tincture of iodine, and withdrew the mercury, except in the shape of an occasional calomel purgative. My success was complete. The disease gradually disappeared, and the patient has remained perfectly well ever since.

I may remark in this place, with regard to the question which has been lately agitated, whether the preparations of iodine produce ptyalism, that my experience is rather against the proposition that they do so. In none of the cases which I have detailed did I see any ptyalism produced which I could fairly ascribe to the iodine. This much at any rate is certain, that the production of ptyalism by its means in those cases which are suited to its use, does not, according to my experience, seem to be necessary for their cure.

I have no experience of iodine checking ulceration; but Mr. Key's papers on this subject are, I think, very valuable.

14, Harley Street,
April 26, 1836.

REMARKS

ON

SEAMEN AND THEIR HOSPITAL*.

By Arthur Mower, M.D.

Fellow of the Royal College of Physicians, and Visiting Physician of the Seamen's Hospital.

Some notice of our national establishment for "the relief of sick and diseased seamen," if not so purely medical as a detail of cases and the results of treatment, yet appears sufficiently so, to be not entirely out of place when offered to the College of Physicians. It will be allowed, that not one of the large London hospitals presents itself more imposingly to notice than the Dreadnought, once a first-rate ship, with 104 guns, but now reposing peaceably on the Thames as "the Seamen's Hospital." Large enough for dignity, and old enough to be venerable, her name has gathered sufficient reputation to appear with some lustre on her head and stern, as well as in the naval history of Great Britain. A ship, like a residence on shore, may surely derive an interest from a great man having made it for some time his home. During nearly twelve months, and till within a few days of the battle off Trafalgar, the Dreadnought bore the flag of Admiral, afterwards Lord, Collingwood; and on board this vessel were written some of those admirable letters, which render so attractive his published "Life and Correspondence."

The Dreadnought was less early in the action off Trafalgar than others of the British squadron, because she sailed

* Read at the evening meeting of the College of Physicians, April 25, 1836.

less quickly; but when there, she did her duty, and was of especial service in saving lives after the battle, on those days when many of the prize vessels, disabled and dismantled, were driven on shore by storms. Even then, she offered a refuge to distressed sailors, of whatever nation.

The glory of her active days has been succeeded by a highly honourable destiny. She has not been sent to sleep in ordinary, nor degraded into hulks, with some of her contemporaries; but, stationed amidst the continual passing to-and-fro of vessels of all nations, she is ever ready to receive, from any part of them, sailors who require medical or surgical assistance. Like a *sœur de charité*, she is entirely devoted to the service of the sick.

The routine of medical practice in other hospitals can be little varied, except by peculiarities in the phenomena of disease. The patients, with a few exceptions, are of our own nation; and from a class of life daily near us for observation: their personal adventures and feelings, therefore, except as illustrating their maladies, are generally considered too obscure and uninteresting for the trouble of inquiry. We attend to their complaints rather than to themselves, and study pathology more attentively than human nature. In the Seamen's Hospital, the individual himself necessarily excites curiosity, as well as his disease. The monotony of symptoms is there continually relieved by novel traits of character, or the mention of strange adventures, which gives additional interest to the accompanying detail of aches and pains; and these aches and pains, if deserving only common names, and requiring only common remedies, arise, in many cases, from by no means common causes. They are not referred to the uninteresting medium of cold and wet, damp beds, or drizzling showers, which make a land's-man shiver, and send him coughing and rheumatic to an hospital, but to the drenching waves of high and heavy seas; to night-watchings amidst surrounding ice bergs; to exhausting toil during long-continued gales; to the extremes of hardship and of suffering, after a disastrous, and all-but-fatal, shipwreck. Even for his maladies on shore, a sailor frequently provides a cause that has in it something of the energy of the winds and waves that usually excite him. He does not disorder his nerves, or derange his stomach moderately, by quiet sotting, or occasional intoxication, but resolutely keeps himself drunk for weeks together; and after the most perfect devotion to liquor till his money is expended, he comes with horrors, and in a wild delirium, to the Seamen's Hospital. The wind is said to be tempered to the lamb; and by somewhat of an inverse mode of accommodation, the stomach of a sailor seems to be tempered to the strong and fiery liquors it is unmercifully made to endure after a long voyage; and nothing is more remarkable than this power of endurance —except, perhaps, the ease with which such stomachs may be recovered from the consequences of a long debauch. Men, who have been continually drunk for several successive weeks, and during that time have eaten nothing, recover in a remarkably short time from their delirium tremens, by the use of strong opiates, and antispasmodic medicines. They are as if rescued from a most bewildering sea, and drawn, to their great content, into entirely smooth water.

In other hospitals we see how disease is modified by individual temperament; in the Dreadnought, we observe, besides, how it is modified by national constitution. In one bed lies a stout Englishman, from whom 30 or 40 ounces of blood are at once taken away to reduce an inflammation, which is finally to be cured by successive and copious bleedings. In a bed next to him is a negro, as finely formed, and apparently as athletic, as the Englishman, labouring under an inflammation quite as violent, yet by similar venesections, he would be destroyed. The negro is physically and morally less fitted for endurance than other men; his bodily strength is more quickly lowered by active treatment; and his moral nature sinks into hopeless depression at the anticipation of death. The nurses declare that the negroes "die of sulks." When they despair of recovery, it is true that they will take neither nourishment nor medicine; they will speak to no one; and appear to notice nothing. They are literally dead to the world for some days before their dissolution, and their actual death is but the quiet termination of a long and complete fit of abstraction.

A recovery from such a state has been noticed only in one instance. A negro boy, whose complaints were not very serious, suddenly became sulky, and would neither speak nor eat, nor take medicine. He was once observed, indeed, to eat a little bread in the night, as if by stealth, but he became more and more emaciated, and was going, as it were, sideways and silently towards death, after the negro fashion, when the nurse happily thought of offering him some rice. When he could be roused to a glimpse of what was before him, his eyes brightened, and opened more widely; he raised himself, and then saw clearly the luxury which was offered him; he snatched the trencher from the nurse, sprang with it out of bed, and after an imperfect gallopade round the ward, he devoured his rice in ecstacy; and with rice, *ad libitum*, for his diet, he soon got well.

The American blacks do not go out of life so sulkily as the negroes. They are a noble race of men. Their features are more prepossessing, their capacities are more developed, and they have greater passive courage. Speaking perfectly the language, they have much of the intelligence of the Americans, and a mildness and subduedness of manner, which is much more attractive than the democratic bluntness of the true Yankee sailor.

The South Sea islanders occasionally become doggedly ill-natured at the approach of death; but, in general, from their appearance and character, they are a very interesting class of patients. Unhappily, they are too exotic in constitution to bear well the trials of our changeable climate. From the cold, the fogs, and the gin of London, their organs of respiration soon become diseased, and few of them can bear the active treatment necessary for their cure.

It may here be remarked, by the way, that for pulmonary and other complaints to which sailors are most liable, a ship can never be a good hospital. Disorders of the chest, frequently aggravated by the low and damp situation of the vessel, and the necessarily confined air between decks, have at all times a less chance of cure; rheumatisms are more tedious, and, when apparently cured, relapses are more common; chronic dysenteries are more obstinate, and erysipelas more frequent, than in the large and lofty wards of a hospital on shore.

If part of the large Greenwich Hospital could be granted for the purposes, and instead of the Dreadnought, as some of our influential Governors wish and think it might, the ends of the Seamen's Hospital would, beyond a doubt, be more fully answered.

Some of the South Sea islanders are tattooed very beautifully. The skin of one of them, strikingly figured, has been given, by my friend Dr. Roupell, to the museum of this College.

The Welch sailors do not become sulky like the negroes, but they are almost as easily depressed; and they timidly magnify unimportant ailments. They are so distrustful of their convalescence as to leave the ship, apparently not quite sure whether they have any cause to be grateful. Not so the Irish: their loquacious gaiety, even during severe sickness, contrasts with the decorous resignation of the Scotch, and the grave indifference of the English. The Scotch and English, when cured, cheerfully express their thanks; the Irishman not only offers thanks in a double portion, but invokes for you a long life and many blessings. There would be no better practice than amongst a few families of poor Irish, if good wishes and blessings could be converted into ready money.

Sailors, it is well known, have manners peculiar to their order, and a phraseology which is formed by their occupation. In sickness, the sailor characteristics are less apparent; they resume their prominence during convalescence, and are perhaps more remarkable in British seamen than in those of other nations. A French, a German, or a Spanish sailor, is not very different (in speech, at least) from landsmen of the same countries. He tells his tale in simple unfigurative language, as if his early associations with shore remained longer, and were more powerful, than those afterwards formed at sea. The British tars seem more confirmed in nautical phrases; their recollections of land are not so vivid or so attractive, and their language has more constant reference to their ship and to the waters, where they feel themselves so much at home.

What strange histories might we collect in the Dreadnought—what amusing autobiographies might be written there, if the patients could generally write, as well as speak, intelligibly!

A few of them *have* furnished us with written memorials of themselves. A native of St. Helena, who attended constantly on Bonaparte during the whole of his residence in the island, wrote for us an amusing account—and, we believe, a very faithful one—of his experience whilst in the ex-emperor's service. In it we have the world's hero described by his valet; we have Napoleon, the Alpha and Omega of his dynasty, annoyed, like humbler men, with trifles; enraged at the Governor, and scheming fruitlessly to escape; playing the gallant to the young girls in St. Helena; liberal and considerate towards individuals, yet without one generous thought or wish for the general happiness of his race; enduring sickness with fortitude, and dying calmly, if not resignedly—like a soldier, if not like a Christian: refusing the priest whom Marshal Bertrand proposed should see him, "he died, and made no sign."

We had lately in the hospital a native from the English island of New Providence, around whose bed parties of convalescents were frequently collected, to hear the strange and amusing stories he invented and told for their amusement. A tale which he composed and left, fills ten sheets of letter-paper, and is closely and very well written. If, in this production of his fancy, there are some transgressions against good taste, and many grammatical errors, the characters are described very clearly, and are well sustained throughout; and he has certainly succeeded in what Sir Joshua Reynolds asserts to be the great end of art—"to strike the imagination."

We have the autobiography of a sailor of Hindoo descent, who could speak seven languages: it is well written, and very interesting. His life, from boyhood, had been a thirty years of wandering, with more than the usual allowance of adventure and vicissitude. To change his religion from Mahometanism to Christianity, was a prelude to the changeful course of his succeeding years. He was shipwrecked thrice, and once was all but destroyed by assassination. He had been in every latitude, and had visited almost every country on the globe; ran away from ships when not pleased with his pay or treatment; narrowly escaped hanging as a pirate; went on slave voyages to Africa, and gives testimony to the horrors of the middle passage; worked in the back settlements, and floated down the rapids and rivers of America on large rafts of timber; led, with the Indians, the wild life of a savage; and he is gone again to wander, as poor as when he began the world, and still obliged to labour for his daily bread. Such is the fate of most sailors. During their lives, of excitement, it is true, but of severe toil and hardship, they can allow themselves no repose till they are unable to be any longer active; and then, with no provision for the close of life, they are forced to end their days in poverty or dependence.

A large hospital is about to be established for Merchant Seamen; but there will still be a public duty towards sailors left undischarged, so long as Savings Banks are not opened for their exclusive benefit, and their money, by such means, saved to them from the crimps, harlots, and gin-shops, which absorb it so rapidly whilst they are on shore. Mr. Walker recommends Savings-Banks for seamen, very eloquently and convincingly, in his work, "The Original:"—"It is quite melancholy," he writes, "to see how many instances there are of noble and generous fellows falling a prey to the most worthless, for want of a little protection. They have no friends to put them in the right way, whilst they are beset on every side by the most voracious and profligate of both sexes, whose interest it is to decoy them into habits of the most senseless improvidence."

If nothing has been done to assist seamen to an independence against a time of sickness, or the close of life, neither has much been done to assist the better development of their faculties, or give them a higher tone of moral feeling. In our plans for the march of intellect, and for the education of the lower classes, sailors have been forgotten. We are amused with the oddities on the surface of their character, and are unmindful, or unaware, of the improveable nature which lies beneath. Why might there not be a Sailor's, as well as a Mechanic's Institute; where popular instruction should be given on the many subjects connected with a seaman's occupation, and where he might lay in stores of useful knowledge for pleasure and benefit, whether at sea or on shore? A sailor frequently remains many weeks in port; either, when paid off, he waits for another ship, or whilst

the one to which he belongs clears out her cargo. During these weeks he has necessarily much leisure, and were he comfortably lodged, and his money at rest in a Savings' Bank, he might find instruction and profitable amusement at his institute, and from a lending library that might be attached to it. He would, consequently, be less exposed to drunkenness and disease, and the knowledge gained would make him neither less useful nor less happy: assuredly he would not feel less attached to the country which had shown so much interest in his comfort and welfare.

LIFE AND DEATH OF THE CHIMPANZEE.

[An interesting account of all that is known of this species, together with a minute detail of the illness of the individual lately in the Zoological Gardens, is given by Mr. Youatt in the last number of the "Veterinarian." We subjoin the paper in a condensed form.]

The Chimpanzee belongs to the order Quadrumana, the genus Simia, and the sub-genus Troglodytes. From the colour of his harsh and scanty hair, he is called Simia Troglodytes Niger, and, improperly, "the black orang." While the orang utan is of Asiatic birth, the chimpanzee is an inhabitant of the intertropical portion of Africa, and there alone has hitherto been found. He is, probably, the Barris, or great wild man of the African woods, of which vague and often incredible accounts have been given by travellers. Of his natural habits little is certainly known, although he was seen more than 300 years before the Christian æra, by Hanno, the Carthaginian, on one of the islands on the western coast of Africa.

In several peculiarities of structure, the chimpanzee approaches much nearer to the human being than does the orang. Mr. Owen, the sub-curator of the Hunterian museum, and a most unwearied and valuable contributor to our knowledge of comparative anatomy, has drawn, in the fourth part of the first volume of the Transactions of the Zoological Society of London, a very interesting comparison between the osteology of the chimpanzee and the orang with each other, and with man. He has proved that the structure of the former approaches much more nearly to that of the human being than does that of the latter; and, in fact, that the chimpanzee occupies the first step next to man in the descending series of beings.

The animal that is the subject of the present memoir was purchased from a party of natives, at Grand Bassan, on the Grain Coast of Guinea. They said that they had shot the mother, who was nursing it in her arms, 120 miles up the country. It was brought to Bristol, and thence transferred to the menagerie of the Zoological Society of London, where it arrived. It was supposed, from the state of its teeth, that it then was about fifteen months old. It was nearly two feet in height. The natives said that the mother was full four feet and a half in height; but it is the opinion of most naturalists, that the wild chimpanzee is not more than four feet high. It soon appeared to have forgotten its mother and its native forests, and so readily attached itself to those who took notice of it and fed it, that it was liberated from its confinement, and suffered to have the whole range of the ship. It would climb up the rigging with an agility which no sailor could equal. It would spring fearlessly, and at a considerable distance, from one rope to another, courted the notice of every one, and, except when too unmercifully teazed, was always in good humour, and ready for play.

When he arrived at the gardens, a Guernsey frock was procured for him, and a little sailor's hat; and as he sat within his cage, gazing composedly around, as he would often do for a considerable time, he looked like an old weather-beaten sailor, enjoying his well-earned repose. The likeness was too strong to be pleasing; and the writer of this memoir acknowledges that it was long before he could get rid of a feeling of dislike, and almost of loathing, when he paid him his usual morning visit.

He soon attached himself to his keeper, and would play with him, and cuddle him, and was never so happy as when he could throw his arms around him, and bury his head in his bosom. Of this position he was never tired.

He was perfectly obedient to his

keeper, and never offered to bite or to resist him. He was also very much attached to the housekeeper. He appeared to have more fondness for her than for the keeper, and this increased when he became ill; he would then cry piteously to be taken into her lap; but he took liberties with her which he never attempted with the keeper,—he would assume all the airs of a sick and petted child, and once bit her very severely in the hand.

He used to have his face and hands washed, and his hair combed, every morning; and, at the command of his keeper, he would very orderly strip himself for this purpose. He would grasp the cuffs of his Guernsey frock, and draw his arms out, one after the other, as quickly as any human being could effect such an operation: or, if the sleeves of some of his vests were a little too tight, he would turn the body over his head, and so draw out his arms. He never, however, could accomplish the dressing of himself again, although he often attempted it.

He used to enjoy being tickled by his attendants. He would lie on his back, and hollow, and chuckle, and laugh, while they pulled him about—yes! it very nearly approximated to, or was almost the identical laugh of the human being.

He had all the boy's and the monkey's delight of mischief. He would tease the puppies of a Barbary bitch that was in the same room; he would plague the mother—give no rest to another dog that was there; but then, in his turn, he would submit, without any attempt at retaliation, and would suffer himself to be teazed, and not a little roughly handled by them.

When he had not them to play with, or when he was ordered, he would climb a rudely constructed tree in his cage, and would leap from bough to bough, or would get into his swing, and shew himself an adept in the art of balancing himself, superior to the wandering professors of it; or he would play with a large ball that usually lay in a corner of his cage. His countenance would then brighten up to a degree that could hardly have been expected from its usual staid and grave expression. "In his most sportive play, however," says the author of an interesting account of him in the Penny Magazine, "there was nothing of the restless quickness so observable in the actions of the monkey—nothing of that chattering and grinning on every surprise; but a superiority of character, and an approximation of its manners, however distant, to those of the young of our own race." It must, however, be added, that the approximation was very distant—if the phrase may be permitted; and that on no occasion could I discover, and I looked anxiously for it, any indications of intelligence superior, or even equal, to some of the domesticated animals. There was a quiet gravity of countenance and demeanour, which seemed in him, as in many a human being, to cover much lack of thought.

His food consisted of fruit, milk, biscuits, and, now and then, a little cooked meat; his favourite food was raw ripe apples, which were always carefully pared for him, and which he would give to his keeper for that purpose. He began afterwards to be very fond of sugared tea, and occasionally he was clamorous for the porter of the keepers. He would take the cup in both his hands, and lift it to his lips, and drink precisely in the same way that the human being would, except that his lips protruded considerable farther.

He exhibited no aversion to any of the quadrupeds that were occasionally brought within his view. It has, however, been said, that "the monkey tribes have an instinctive fear of the larger kinds of snakes, to which they occasionally fall a prey: it was considered worth the trial to ascertain whether, in an animal so young, and which most probably had never seen a formidable snake, this feeling was fairly displayed. Accordingly a large snake was shewn to him, on seeing which the chimpanzee was at once filled with terror, and hid himself in a corner. The lid of the basket into which the snake was put was then closed, and an apple placed upon it; and though the animal desired the fruit, it would not venture near the lurking-place of its dreaded foe, but by actions and gestures, too plain to be misunderstood, expressed its consternation; nothing, in fact, would induce it to approach the basket. This, with the snake, was at length removed, and the apple was placed upon a chair; then, after a most cautious and keen scrutiny, with many doubts and misgivings, the timid creature at length ventured to take the offered prize. From

this experiment it is plain that the snake is dreaded instinctively even by the largest of the simiadæ."

After all, the real character and habits, and *intellect* of the chimpanzee, remain to be ascertained; and it is to be hoped that the opportunity may yet occur, by the captivity of one of a more advanced age, of forming a more correct estimate of him.

This interesting fellow remained with us, apparently in the enjoyment of perfect health, until the 29th of November, when he was observed to have suddenly lost the use of the left leg. He could not put it to the ground, and when he attempted to do so he cried with pain. In the course of a few hours the use of the right leg was gone: he could scarcely move it at all; it was a crawling kind of motion, and as he attempted to move he cried dreadfully. I was in doubt whether it was a case of rheumatism or cramp. I gave him three grains of calomel, and ordered plenty of friction to be used during the afternoon and night. On the following day he was quite well, and so he continued until

February 27th, when I thought he did not appear to be in his usual health. His appetite failed; he was restless; he had a dull yet anxious countenance; and his paw, when he gave it to me, for by this time he and I were sworn friends, was hot. There was no apparent local affection. He was feverish. I ordered that two drachms of the syrup of buckthorn should be given in his tea.

[The fever continued, and the poor animal lost flesh daily. Several professional men joined Mr. Youatt in consultation at different times, and numerous expedients were tried, including purgatives, mercurials, antimony, bleeding (of which Chimpanzee complained bitterly), opiates, liq. potassæ, &c. All these, however, proved unavailing. The account of the poor animal's sufferings is minute and even affecting; but we can only make room for the conclusion.]

March 25th.—Hope has now quite fled. All his evacuations are involuntary, and although he will sip a little milk when it is held to his mouth, the only notice which he takes of his best friends, even of his old nurse, who loved him almost as if he were her child, was to slowly open his sunken eyes, and gaze piteously for a moment on her or his keeper; and then the lid would droop and fall, and a feeble breathing, attended by a faint moan, were the only indications of life.

I saw him about ten o'clock at night. At eleven, he all at once roused himself, and began to scream violently. He was taken out, and wrapped in a blanket, and held on the lap of his keeper, to whom he clung as closely as he could, frequently feebly raising his head and gazing piteously on his face. This continued about an hour, when the screams became less violent, and assumed a resemblance, painful to hear, to the cries of a sick and sinking infant. This continued until two o'clock on the following morning, when they gradually subsided. He then was evidently attempting to free himself from the blanket, which, with the assistance of the keeper, he accomplished; — then with an effort, of which a moment before he seemed to be incapable, he flung his arms around the keeper's neck, and clenched his hands for firmer hold—he threw back his head a little, and brought it before that of the keeper, gazed intensely on his face, with an expression which the man says he shall never forget; and so he continued one or two minutes, when his hold gradually loosened, his arms fell, and he had died without a struggle.

He was examined on the following day. It so happened that I could not be present, but Mr. Martin favoured me with the post-mortem appearances. "The death of the chimpanzee resulted from great visceral disease. The spleen was tuberculated, and united to the adjacent viscera by strong adhesions. The lower portion of the ileum was extensively ulcerated, and in several places the coats of the intestines were completely destroyed, and, had it not been for extensive adhesions of this part, the contents of the bowels must have escaped into the abdominal cavity. The cæcum also participated in the disease. The mesenteric glands were morbidly enlarged, and the liver was also diseased, its colour being of a greyish yellow, exhibiting the minute portal vessels gorged with blood. The lungs were tolerably healthy, but the substance somewhat firmer than in their natural state. They may be said to have been hepatized in a slight degree; they were, however, unobstructed. Dentition had nothing at all to do with the affair."

ACCOUNT OF THE POST-MORTEM APPEARANCES OF THE BODY,

AND ESPECIALLY OF THE GENITAL ORGANS, OF

THE HERMAPHRODITE DURRGE.

By Professor Mayer,
Of Bonn.

[*From the "Wochenschrift für die Gesammte Heilkunde" of Berlin.*]

The individual whose peculiarities form the subject of the present paper, has been known to the medical public for more than thirty years, by the name, formerly, of Carl Durrgè, but lately as Maria Dorothea Duri. He, or she, was born in Berlin, or Potsdam, in 1780, and christened as a girl. For the earliest account of Durrgè, we are indebted to Hufeland, who, in 1801, published some remarks on the then supposed girl; at that time twenty years old, and dressed in female attire. Hufeland, at this time, pronounced the prevailing sexual character of the person to be feminine; which opinion this post-mortem examination has verified. Durrgè was subsequently examined by other physicians and professors of medicine: many different opinions were formed. The most complete of those which were published is to be found in Marten's "*Beschreibung und Abbildung der M. D. Derrier*," Leipzig, 1802. Durrgè was induced, at this time, to dress as a man, and to allow a personal inspection at the different German Universities.

In 1808 I saw him at Landshut, and in 1816 he again travelled through Germany. In 1817 he visited London and Paris, and came back again through Holland to Germany. He had learned the art of wax modelling, and made several excellent models for different museums. In 1820 (in his fortieth year) he came to Bonn, and I held at that time a public lecture and demonstration respecting him. He was soon afterwards appointed wax-modeller and inspector to the Anatomical Museum.

He died suddenly, in the month of March, 1835, of apoplexy, being then 55 years old. In a memorandum book which he carried about him, were written the opinions of many learned men concerning him; among which were the following, by Osiander and Gall:—

"Carl Derrier (neither Derge nor Dœrges) is worthy of inspection, as being a singularly formed male individual, but especially so since so many learned anatomical professors have not known what opinion to form of his sex: some considering him to be an hermaphrodite, others taking him to be a woman, and one, indeed, conjecturing the presence of a distended (*blasige*) womb. But a hollow or bladder-like womb cannot exist without pregnancy or a distension arising from disease; and a vagina-like sac is no proof of the female sex, else would, in many instances, fistulæ in perineo in a man give him therefore an ampulla vaginalis, and a womanly character; and if nature formed in the perineum of a male child, while still in the womb, a fistula in perineo—if this child also had the urethra cleft down the penis, the testicles retained — and if nature did not perfect these, but left them arrested in their development; and if, in his farther growth, he possessed no beard nor hair in the armpits; if there was no semen; if a projecting larynx and manly voice did not develop themselves; nature would, in this case, have as little formed a woman as the gelding a horse makes it a mare. Many say, that, in this instance, nature has produced a being without knowing what she would make; others describe her as a bungler, who *would* have made a man, but has produced instead an imperfect one, or perhaps a maid.

"But a '*mas læsus*,' in spite of what Aristotle may say, is still no '*fœmina*;' and a '*homo physice effeminatus*' is no '*hermaphroditus*,' and can only be taken for a '*homo dubii generis*' by those whose anatomical knowlege has not taught them what is really masculine and what feminine.

"F. B. Osiander.

"Göttingen, May 21, 1817."

Gall's opinion was the following:—

"The so-named Carl Derrier ought, if he be called after his sex, to be named Caroline Derrier. The construction of the head is that of a woman, long from before backward; the forehead low and small. Although he is now thirty-seven years old, yet he has no beard, and his voice is that of an elderly woman. His larynx is small; the arms and knees are bent inwards, as in the female sex; the breasts are larger, in proportion to his size, than would be consistent with the development of a

man. The hips are those of a woman; in short, the construction and proportion of the whole body bespeak the woman. The enlarged clitoris is not placed over a scrotum, so that it cannot be called the penis of a man: it is placed rather between the great labia, as in the female organs.

"In his youth, the menstrual discharge has occasionally appeared. The organ which he possesses does not also, as in the man, arise behind the inner arch of the pubes, and this alone is sufficient to show that he is not to be taken for a hypospadian, as the Parisian faculty have supposed. Whether or not he possesses a womb, cannot be decided until after death. I would farther remark, that the depressions of the occiput are scarcely to be perceived externally, which betrays a deficiency of the development of the cerebellum; and this perfectly harmonizes with his indifference to both sexes, for there are instances of women who have possessed no wombs, but who have still retained their sexual inclinations.

(Signed) "GALL.

"Paris, Sept. 19, 1817."

There was, then, no unanimity in the opinions of physicians, concerning the real sex of Durrgè. He was said to be male by Kopp, Kausch, Mursinna, Soemmering, Rosenmüller, Osiander, Cooper, Lawrence, Green, and the medical faculty at Paris. He was declared to be female by Hufeland, Gall, and Brookes, of London; others again, as Schneider, Lauth, Schmidtmüller, Rilgen, and others, considered him to belong to neither sex. Also the different parts of the body taken individually, were declared by some to resemble most the male, and by others the female sex. The pelvis, however, was generally declared to be in the proportions of a female — viz. by Rittgen, Willbrand, Blume, Münz, &c.

In my public demonstration, already mentioned, I pronounced my opinion to be, that the two sexes were mingled in this individual. From that time to his death (more than fifteen years), I have had him continually under my observation. He always carried himself as a man, probably in part out of vanity, and shewed inclination to the other sex, but without any decided sexual impulse which would make his preponderating sex more certain. His character was evidently a mixture of manly and womanish attributes. For his small growth he possessed unusual courage, muscular strength, and technical dexterity; (his wax modellings were naturally and correctly executed.) His voice, although it grew stronger and deeper with age, was but shrill and weak; his beard grew sparingly, and all his hair fell off, excepting a few long ones on the back part of the head; his head and countenance were those of an old woman, and with these corresponded the want of teeth, the short neck, the breast, so abundantly supplied with fat, and the position of the arms and feet.

In his twentieth year there was a discharge of blood from his genital organs, repeated three times. Since then there had been no trace of it, but he has frequently had discharge of blood from the nose; he was also slightly troubled with hæmorrhoids; this, however, was in a great measure the consequence of his habits, as he was much addicted to drinking coffee and wine. He was never known to have had nocturnal emissions, or any other seminal discharge. In his twenty-first year he lost his hair through gout in the head, and he was subsequently subject to repeated arthritic attacks, so that gouty secretions were found in many parts of his skeleton. His body was fully developed in his thirteenth year, and since then he has not grown any taller.

In his thirty-eighth year a common change occurred in his body; he became fat, and his voice grew stronger and deeper. From his fortieth year I have known him to be healthy, active, and expert. At this time he was attacked with a nervous fever, at the time of his attendance at the anatomical rooms; this he got through very well. In the last three years his memory, which had been hitherto very good, failed him; he altered much, and entirely relinquished his wax embossing. He died, as has been already stated, suddenly of apoplexy, having been remarked by me to have had, for some days previously, a particularly heavy and fixed aspect.

Description of the Exterior of the Body.

The length of the body was five feet; the length of the upper extremity, from the condyle of the humerus to the point of the middle finger, 2 feet $6\frac{1}{4}$ inches;

that of the lower extremity, from the trochanter major to the heel, 2 feet 10¾ inches. The head is formed like a woman's, small, the forehead narrow and low, and the posterior part arched. The hair is exceedingly scanty, and is only present on the occipital region; beard very slight; the neck is short, and the larynx does not project. The width of the shoulders is 1 foot 2 inches; the thorax is short and narrow; the remainder of the trunk longer; the breasts are moderately projecting; but the nipples, on the contrary, are somewhat retracted. The pelvis is not wide; the arch of the pubes not very diverging; the arms and legs shew a womanlike curve.

Description of the Organs in the Interior of the Body.

The tongue is short, broad, and rounded; the papillæ capitatæ much developed; the os hyoides firmly ossified, but small. The thyroid cartilage weakly developed, is small; but from above to below its cartilage is firm. The thyroid gland is small, but normal; its superior and inferior horns, however, are very strongly marked, as also the corpusculum santorinianum. The ligamenta crico-thyroidea, as well as the cricoid cartilage, are proportionally strongly developed. The epiglottis is thick and strong; the cavitas laryngis is not very wide, but the ligamenta vocalia are in comparison thick and strong. The trachea is rather narrow, and its cartilages are somewhat weaker than in man. The lungs are moderately small, each being divided by a slightly marked fissure into two lobes; the left lung was closely adherent to the parietes of the chest, as also to the diaphragm and pericardium of its side; the right lung appeared quite healthy; there were only a few arthritical tubercles in it, the size of peas; the left, however, contained many more, especially in the inner side of the superior part.

The heart is large, wide, and rounded; its muscular fibre is well developed, and offers nothing irregular; the distribution of the principal vessels at the arch of the aorta is normal; the general form of the heart is that of a woman. The stomach is rather long; its muscular fibre weak. The spleen was adherent to the parietes of the abdomen; it is unusually small, its length being 2 inches 10 lines, its breadth 1″ 8‴. The liver is tolerably large. The gall-bladder contained fifty small blackish concretions, of the size of currants. The remainder of the alimentary canal offered nothing irregular. The cæcum was large, and processus vermiformis wide. The mamma itself is but slightly developed, whilst over and around it there is a great quantity of reddish yellow granulated fat, without shewing clearly the presence of any *glandular* acini. The nipple is very slightly projecting; it shews many openings, which are, however, nothing more than sebaceous follicles, situated in the areola. The kidneys are narrow, and rather long,—on the whole, small; the renal capsules are normal.

The encephalon, and especially the cerebrum, shows, independently of its small size, decidedly the form and structure peculiar to the female. The whole brain is well rounded and arched; the lobes are not very prominent; the convolutions are very numerous, but small; the crura cerebri short and slight; the pons varolii small, as also the medulla oblongata. The cerebral nerves, particularly the fifth, are smaller than in man. The cerebellum is somewhat weakly developed and compressed; its right hemisphere is evidently weaker than the left: this obtains in all its lobes and their subdivisions, but is more especially evident in the lobulus biventer, the tonsils, and the flocci; besides this, the lamellæ of the cerebellum are numerous.

In the cerebrum also the right hemisphere appears to be more slightly developed than the left, which is made especially evident upon the base of the three lobes by a considerable depression. The corpus callosum is proportionally short; the thalami, corpora quadrigemina, pineal gland, and corpora candicantia, small.

The skull, taken together, is of small size; its bones are thin, but firm; the sutures perfectly visible.

The vertebral column is regularly formed, but the individual vertebræ, especially of the neck and back, are weak; the ribs are weak and flat. On the left side, the third, fourth, and fifth ribs appear to have been broken in two places; the seventh in one. They are, however, for the most part, reunited. This probably occurred from a fall in his earlier life. He did not complain of pain in the part. It was on this side

that the left lung was adherent to the costal pleura. The sternum, especially the manubrium, is proportionally strong. The whole thorax is narrow, particularly the upper half, whilst the lower is more capacious. The bones of the upper extremity are strong, although they preserve the proportion of a woman's; this is very evident in the scapula and clavicle; the latter is short, roundish, thin, and much bent. The fore-arm forms a very evident angle outwards with the upper arm; the hand is as small as a woman's. The lumbar vertebræ are not large in proportion to other parts, whilst, on the contrary, the sacrum is strong and broad; its promontory does not project much.

The pelvis consists of strong thick bones; it is in its whole narrow, and shows a remarkable manly form. Its transverse diameter, between the cristæ ilii, at the widest part, is nine inches; the distance between the anterior superior spinous processes, 7 in. 3 lines. The proportions of the brim of the pelvis are these: — Antero posteriorly, 3″ 4‴; transversely, 4″ 5‴; obliquely, from the sacro-iliac synchondrosis to the junction of pubes and ilium, 4″; transverse diameter of the lower aperture, 3″ 3‴; antero-posterior, 2″ 6‴. The symphysis pubis moderately long and small; the foramina obturatoria are rather long; the proportion of the angle formed by the pubes is that of a man, giving about 65°; the lateral portions of the ilium are directed upwards, and the acetabula lie more forwards; the tubera ischiadica are directed backwards and inwards; the whole pelvis is somewhat irregular and oblique, so that the right side of the inferior paries is narrower and smaller than the left, whilst at the same time the promontory is bent more towards the left side; the bones of the lower extremity likewise show no particular degree of firmness; the collum femoris is extremely short, the trochanters are but slightly marked, and the knees are bent inwards.

Description of the Genital Organs in particular.

The mons veneris is slightly arched; the hair on the pubes is small in quantity, and does not extend as high as the navel,—it is also scanty and weak on the labia, the perineum, and around the arms; the length of the penis to the corona glandis is about 2 inches; the glans itself measures 9 lines in length; the greater part of the penis is retracted beneath the skin of the mons veneris; the corpora cavernosa are moderately developed, showing a perpendicular diameter of 8 lines, and taken together, their transverse diameter is 4″,—they are separated by a septum; the corpus spongiosum urethræ is of course wanting; the prepuce covers only one half of the glans,—at its extremity, and on the inferior surface, is a small depression, fossa navicularis, from which point arises the semi-canal, which represents the urethra slit up. This half canal is formed by two folds of skin, which separate from one another wider posteriorly, and so in some measure resemble nymphæ. This channel leads to a round opening, of the size of a large quill. The great labia form, by means of their wrinkled skin, the projecting under-lip of this opening; the lateral and superior portions are covered with smooth mucous membrane. It is on each side of this upper portion that the lengthened folds are situated which represent the urethra. On the under side are seen traces of the carunculæ myrtiformes. This opening is situated in a vestibule of eight lines in length, which is extended upwards as the urethra, and backwards in a wide canal, which represents the vagina. The septum, which in this part divides the vagina from the urethra, is crescentic, and lies horizontally. The urethra, beginning thus at the root of the penis, is immediately surrounded by the prostate gland; which body is decidedly firm, but not very thick. Here are found some large openings, which are in part mucous follicles; in part, however, the emissory ducts of the prostate gland. The neck of the bladder, as also the bladder itself, is regularly formed; the membranes of the latter are firm, and the muscular fibre is well developed.

The canal which represents the vagina consists of a mucous membrane, having beneath it numerous delicate muscular fibres; in it was some greenish mucus. It is surrounded at its commencement by a vascular reticulated tissue, from which it can be easily separated; and this tissue, which consists for the most part of distended varicose veins, extends upwards between the vagina and urinary bladder. Here it becomes gradually

lost, and in this part the principal trunks of the veins leave it; and here also a considerable artery advances to distribute itself in its texture. The openings of the ureters offer nothing unusual.

The length of the vagina is 2″ 8‴, its width is anteriorly ten, and posteriorly six lines. The inner surface is rather corrugated at its commencement, but afterwards it is smooth, and is provided with very fine papillæ, and has, also, some star-like reticulated spots resembling cicatrices. The vagina terminates in a still more constricted and closed position, which consists merely of a spongy tissue, and is from four to six lines in length; behind this isthmus, which is, indeed, the closed orifice of the uterus, lies this organ itself, which, maintaining the same oblique direction taken by the vagina, is situated between the bladder and rectum, but it inclines itself throughout more to the left side; so that the fundus lies quite on the left side of the urinary bladder. The length of the uterus is 2″ 3‴; it is, however, but small in proportion to its length. Its cervix and fundus may be distinguished. It is at first furnished only with a thin skin; farther, however, its inner surface shews some slight folds and spots of a yellowish brown colour. It contained some gelatinous mucus. The cavity of the uterus was still smaller than the *constricted* portion of the vagina, and would scarcely admit a large quill, still the fundus was wider; its transverse diameter was six lines. On its inner surface were distinctly-marked furrows; it was very vascular, and contained some vesicles resembling hydatids, and here and there some yellow spots. Both the Fallopian tubes open regularly into the fundus uteri; the left is the shorter, its length is 3″ 4‴; the right is an inch longer. Their canal is indeed narrow, but quite perfect, even to the ostium abdominale; which, however, on one side was closed by several distinct hydatids. The ala vespertilionis was evident, and beneath it were some tolerably strong muscular fibres, which passed from the fundus uteri and upon the side of the urinary bladder as a bundle, and, directing their course through the abdominal ring, became lost in the fat covering the pubes. Upon the right side, close to the abdominal end of the Fallopian tube, there is a small flat oval body, to which a string of vessels and muscular fibre is attached

This body is entirely surrounded by peritoneum; it is about as large as a small almond, and its texture consists evidently of a weak yellow fibrous tissue, exactly corresponding with the testicle, and, indeed, the seminal canals can be drawn out of it. The string before alluded to consists of a spermatic artery and vein. On the left side, however, is observed, behind and without the corresponding ostium abdominale of the Fallopian tube, a small round flat body. It was covered by peritoneum, and shewed, after its removal, a granular parenchyma, consisting of separate globules, so that its texture seems to assimilate to the ovarium rather than to the testicle.

We have, therefore, found an union of male and female characteristics in the development of this individual, but certainly less decided than I have found in another Hermaphrodite—the so-named Maria Göttlich,—which individual possesses the most revolting combination of the attributes of the two sexes,—inheriting, on the part of Hermes, imbecility instead of wisdom, and from Aphrodite, ugliness instead of beauty.

The principal male characteristics in Durrgé, are the withered testicle, the penis, and the prostate gland; on the other hand, the uterus, vagina, Fallopian tubes, and the ovarium-like body found on the left side, all bespeak the woman. I consider also the deficiency of one hemisphere of the cerebellum to be a circumstance worthy of remark; this, indeed, had been already conjectured by Gall, in consequence of his indifference to both sexes. The cerebrum, and especially the cerebellum, were imperfectly developed on the right side, and upon the opposite side was found, in the abdomen, only that ambiguous body more like an ovarium; whilst, on the contrary, on the right side was a testicle, although contracted.

PHYSIOLOGY OF THE HEART'S MOTIONS AND SOUNDS.

To the Editor of the Medical Gazette.

Sir,

The letter of Mr. Blyth, in your valuable journal of April 9th, relative to my observations on the "Heart's Action

and Sounds," induced me to reperuse what I had then written, in order to ascertain how far I had rendered myself fairly liable to the accusation of being both verbose and unintelligible.

I confess, with the exception of some verbal inaccuracies *, I have not been able to discover just reasons for Mr. Blyth's unqualified condemnation, and cannot help partly attributing Mr. B.'s conclusions to his not having followed my suggestion, of carefully studying what I advanced, with an opened healthy heart before him. If he will also carefully perform the experiment I have described at the close of my paper, he will perhaps discover that some portion at least of my remarks merited a more indulgent reception. The sentence especially selected as a specimen of my obscurity, and which I am "defied to explain," is only faulty from the word "auricular" being accidentally omitted before "systole,"—an omission the context, I should conceive, would have supplied to any attentive reader; and though a critic might carp at the phrase "*muscularly tightened,*" yet, when associated with what was stated relative to the anatomical connexions of the valves, it is at least free from any obscurity.

One object I had in view was to insist on the fact, that the mitral and bicuspid valves, particularly the latter, are more or less tightened by the contraction of the muscular fibres to which their tendons are attached; and since muscular contraction necessarily precedes the fluid pressure in the ventricle, the valves could not be regarded as passive up to the moment of their being acted upon by the blood; and from the fact of their being in a state of tension *before* they experienced the full pressure of the ventricular contents, that they were physically incapacitated for the production of sound in the manner usually ascribed to them. I attempted to strengthen this view of the subject by referring to M. Bouillaud's description of the form and divisions of the ventricular cavities, mentioning my own belief of its accuracy, founded on frequent personal examination; and if Mr. B. "cannot see the truth of this arbitrary argument," as he styles it, I conclude that he speaks rather from former reminiscences, than from any recent inspection of a fresh and healthy heart.

I also wished to fix the attention of observers upon the relations which the blood invariably maintains with the cardiac cavities, insisting on the fact of their never being, at any one moment, an *empty space* in either the ventricles, auricles, or vascular system; and from these and other considerations which I need not repeat, endeavoured to direct the attention of observers to the different acoustic phenomena produced by the circulation of fluid through shut and constantly filled cavities, from what results from the passage of the same fluid over the same surface, where these physical conditions do not exist. I illustrated my meaning by an experiment, the value of which I leave for the determination of those who will take the trouble to repeat it.

Mr. B. has taken great pains to prove the absurdity of the term "*gradual*" being applied to a phenomenon so rapid as the descent of the blood from the auricle into the ventricle. The word was not intended to represent duration so much as to indicate the difference between the falling of fluid into an empty and previously dilated ventricle, and its entrance into the same cavity, during the act of dilatation, and maintaining an accurate approximation with the expanding parietes. The latter I conceive to be a more gradual process than the former.

My opinion respecting the absence of conflicting currents and molecular collisions, in any degree sufficient for the production of sound, was founded, not upon the *slowness* with which the blood entered the ventricle, but upon the close and perfect contact it preserved with its walls, whose movements it accompanies rather than follows. Though there may be "no difficulty in allowing that there must be conflicting currents and collisions of the fluids," yet when we are investigating them as efficient causes of sound, it is necessary to go farther, and prove, not only that they exist (which no one denies), but their sufficiency to produce the effects assigned to them. In reference to this last point, the following experiment may be deemed applicable. Let the en-

* Page 1016, 2d column, line 15, *for* "diastole," *read* "systole;" page 1017, 1st column, line 29, introduce "auricular" before "systole;" same page, 2d column, line 53, ditto ditto; page 1019, 2d column, line 41, *for* "returning," *read* "retiring."

tire body be immersed in water at sufficient depth to prevent any agitation on the surface being heard, and the arm moved backwards and forwards, so as strongly to agitate the fluid: it will be found that the ear, though immersed in the same fluid, is very slightly conscious of the disturbance; but if similar motions are effected sufficiently near the surface, so as to involve a certain quantity of air and water, the presence of conflicting currents is at once palpable. Let this result be compared with what takes place in the India-rubber bottle, which, from the roughness of its internal surface, is certainly less favourably adapted for the noiseless ingress or egress of fluid, and let the reader draw his own conclusions, as to the efficacy of fluid currents and molecular collisions, as causes of either of the sounds of the heart.

As I really do not understand how Mr. B.'s allusions to the sounds produced by water on the bottom of a boat applies to the subject we are discussing, he will excuse my not replying to what he appears to think a very forcible objection. I am also accused of wisely getting over the difficulty of explaining the particular cause of each sound, by the general terms in which my paper is couched. To this I reply, that it was a matter of indifference to which sound I referred, since my remarks were directed to the analysis of certain alleged causes of sound in general, and were intended rather to prove what was *not* the source of sound than what was. Secondly, there is ample evidence for an attentive reader, that it was the first sound I was really considering; and lastly, my belief regarding the cause of the second sound coinciding with the now commonly received opinion that it depends on the reaction of the blood on the sigmoid valves, I did not think it necessary to make any special allusion to the subject.

The principal part of Mr. B.'s letter is occupied in the attempt to disprove the existence of any sound resulting from muscular contraction; which, at the close of my paper, I casually mentioned as the probable cause of the first sound of the heart. My conclusion is founded on the experiments and reasonings of others, and since it was only accidentally expressed in the paper in question, I must refer Mr. B. to the last edition of Dr. Williams's work on the Diagnosis of Diseases of the Chest, where he will find the subject ably discussed, and, to my mind, satisfactory replies to the objections he has ingeniously advanced.

Mr. B. must certainly be unacquainted with what has already been ascertained on the subject of the heart's action, to think it necessary to refute the opinion of the auricular systole being the cause of the second sound; an idea which I have no where either implied or expressed.

I have thus, sir, as briefly as I could, replied to the letter of Mr. B., and have been induced to do so because I believe that gentleman to be actuated by no other feeling than a love of truth; because his remarks more or less implicate your editorial discrimination; and because I feel they might tend to prevent an impartial examination of considerations which I still believe are not without importance, when endeavouring to determine the true causes of the cardiac sounds.

In conclusion, I would advise your correspondent to leave, for the future, what is unintelligible to its inevitable fate, and not to risk injustice by passing judgment upon opinions which, as he himself acknowledges, he does not understand.—I remain, sir,

Your obedient servant,

CHARLES COWAN.

Bath, April 26, 1836.

REMARKS ON

OPERATIONS FOR ECTROPIUM AND LAGOPHTHALMOS.

By T. WHARTON JONES, Esq.
Of Cork.

(Communicated by Dr. Mackenzie, of Glasgow.)

MY DEAR SIR,

IN your last letter you ask me what I think of Jaeger's operation for ectropium and lagophthalmos, of which there is an account, by Dr. Wm. Brown, in the MEDICAL GAZETTE for February 6, 1836. In reply, I must say I do not think well of it; indeed, so little calculated does it seem to me to succeed, that if it had not been affirmed by Dr. Brown

that Dr. Jaeger had successfully performed the operation, I should have doubted the possibility of its succeeding.

For the operation to do good, the integuments must be very much stretched, and in this state rendered unnaturally adherent to the margin of the orbit, else, on the removal of the bandages and plasters, they would return to their former position. The separation of the integuments from the os frontis, I should fear, would be followed by the formation of abscesses. I do not see the advantage of slitting the eyelid through and through transversely, separating the integuments from the os frontis, through the wound thus made, and afterwards uniting the edges of the *same wound* by suture. The separation of the integuments from the os frontis seems to be the essential part of the operation; and could not this be done as well from above, by making a small cut through the integuments, at the proper distance from the edge of the orbit, and through that opening introducing the straight double-edged scalpel, with which to separate the integuments from the bone from above downwards (in the case of the upper eyelid), thereby avoiding the slitting through of the eyelid altogether? As to the transverse elongation of the lid, this might be remedied by the excision of a wedge-shaped piece.

I have lately put into practice, in bad cases of ectropium and lagophthalmos, a mode of operating, the principle of which, you may remember, I formerly suggested to you, and, in reference to a case of lagophthalmos from a contused wound on the superciliary region, to Dr. Rainy. In the last edition of your Treatise on the Diseases of the Eye (p. 217), my suggestion (which, by the by, is put down as a modification of a plan of Dr. Ammon's, which it is not; for the principle of it is quite different from that of Dr. A.'s operation) is as follows:—"The skin, to the distance of an inch or an inch and a half from the adhesion, is to be firmly stretched, so that the morbid connexion between the lid and the orbit is completely exposed. Two incisions, at such a distance from each other as to include between them the morbid adhesion, are now to be carried from the edge of the orbit, at first perpendicularly, but afterwards inclining towards each other, so that they shall meet at an acute angle, at the distance of about an inch and a half from the edge of the orbit. Beginning at the angle thus formed, the flap is then to be dissected off very cautiously, so as not to cut through the thin and indurated part of the adhering lid. The eyelids are now to be closed, the bleeding stopped, and the flap so placed, that after it has adhered, the previously everted lid shall retain its natural position. The flap is to be fixed in its new situation by stitches, and the angular gap, left by its separation from its former place, is to be closed by the same means. A compress and bandage are then to be applied."

In the cases in which I have operated, the eversion and shortening of the lids had been caused by the contraction of the skin consequent to burns. In performing the operation, I have not ventured to separate the skin from the bone, but have been satisfied with the elongation to the everted and shortened lid, obtained by the stretching of the loose cellular tissue uniting the triangular flap of skin to the adjacent parts. It is to be feared that the complete separation of the flap would be followed by sloughing of it, especially in cases of contraction from burns, in which the texture of the skin is so much injured, and its vitality impaired. In my first operation I made the flap come to a point; the point sloughed: in my second operation I did not make my incisions meet towards the apex of the flap, but left between them a space, about one-sixth of an inch, which was divided by a transverse cut.

The following is a short account of my first case:—

Betty Sullivan, aged 24, has her face much scarred. Both eyes are quite exposed on account of shortening and eversion of the upper eyelids. On the left side, the eversion of the upper eyelid is not so great as on the right. On this side, the ciliary edge of the tarsal cartilage corresponds to the edge of the orbit, and the opposite edge of the cartilage occupies the usual position of the tarsal edge, so that when an attempt is made to close the eye, it is the orbital edge of the tarsal cartilage which is pressed down. There is some degree of shortening and eversion of the left lower eyelid; the eversion becomes very apparent when an attempt to close the eye

is made. Sees very well with the right eye, but with the left, of which there is some opacity of the cornea, does not see well enough to recognise a person. Mentions that at the age of one year and three months she fell into the fire, and had her face severely burned, which is the cause of the state in which she now is. Says that she had an operation performed on the left eye two years ago, and that it was improved by the operation. It is probable that the eversion only had been lessened by the operation, for the shortening of the upper eyelid is still very great.

On the 22d February, 1836, I operated on the left upper eyelid. I made two incisions through the skin, meeting each other at a point. By pressing down the flap thus made, and cutting all opposing bridles of cellular tissue, &c., but without separating the flap from the subjacent parts, I was now enabled to bring down the eyelid nearly into its natural situation by the mere stretching of the subjacent cellular tissue. A piece of the everted conjunctiva was snipped off. Having done this, I brought together, by suture, the edges of the gap left by the drawing down of the flap, and retained the eyelid in its proper place by plaster, compress, and bandage. It was not necessary to diminish the length of the lid transversely. During the healing of the wound, a small piece of the apex of the flap, which had been too much separated from the subjacent parts, sloughed. The parts are now healed; the eversion completely cured; the cicatrice where the part sloughed is pretty broad. When the bandages were first left off, the eyelid was so much elongated, that if the lower lid had not also been shortened, the eye would have been entirely covered. Since leaving off the bandages some shortening has taken place, not from contraction of the skin, which, being no longer stretched on the forehead, is assuming, with the contraction, more the appearance of healthy skin. The left upper eyelid is, notwithstanding, still so much elongated in its perpendicular direction that the eye is very well protected, and, if the lower eyelid were elongated by an operation, the covering to the eye would be complete.

A fortnight ago I operated on the right upper eyelid. I made the incisions in a nearly similar manner. By the stretching of the subjacent cellular tissue, I succeeded in elongating the eyelid so much as to cover the eye entirely, but in consequence of the long-continued displacement of the tarsal cartilage, the ciliary edge remained considerably projecting beyond the surface of the eyeball, whilst the opposite edge continued in apposition with the eyeball. I did not interfere with this state of the parts by attempting any transverse shortening of the lid.

In the operation, I removed a piece of the everted conjunctiva, and with it a bit of tarsal car ilage. From the exposed surface of the cartilage there sprung out a small soft fungus, which I cut off with the scissors. The part was then touched with the lunar caustic pencil.

I remain, my dear sir,
Yours very faithfully,
THOMAS WHARTON JONES.

Cork, 1st April, 1836.

Dr. W. Mackenzie, Glasgow.

ARE MIDWIVES TRUSTWORTHY?

To the Editor of the Medical Gazette.

SIR,

EXPERIENCE has thoroughly convinced me of the necessity of restricting and regulating the practice of midwives. Many governments provide duly instructed and licensed women to attend upon the poor; but with us the midwifery of the humbler classes is left to work its own way, and to add, in no trifling degree, to the number of human calamities. Nobody with the least opportunity of observation will venture to deny that the ignorance of midwives is a very serious evil.

Man-midwifery is advocated by the profession, and sanctioned by the public, upon the ground, that by superior skill and management of women, both during and after labour, much of the actual pain and peril of parturition is spared, and the occurrence of many grave complaints altogether prevented. But since a great proportion of midwifery among the poorer classes falls, as a matter of necessity, into the hands of women, the competency of midwives in general to discharge their duty is of the first importance to the public.

In the city of Norwich, containing a large poor population, the attendance of medical men is small, compared with that of midwives. Two of the older midwives deliver nearly 400 women in the year. The following inscription may be seen on a tombstone in the church-yard of St. Helen:—"Sacred to the memory of Mrs. Phœbe Crew, aged 72, who, during forty years of midwifery-practice in this city, attended 9730 women."

There are only a few midwives in this city who have received instruction*. The greater part have acquired errors of practice from one another; or, commencing as nurses, have boldly entered upon a course of mischievous midwifery: they are very ignorant, very confident, and never apply but in extreme cases; in short, their common practice is barbarous. Besides forcibly dilating the external parts, and making far too frequent and rude examinations, they evince an utter and reckless disregard of the perineum. I have often been shocked at the destruction of this important part in the female economy. I will adduce a few examples, by which I wish to prove that *midwives are not trustworthy*.

In the course of four years my attendance has been required in the following cases:—In foot-presentations, where by hard pulling (without first adjusting the diameters), the head was impacted in the pelvis: in arm-presentation, in which the midwife, not able to ascertain the presenting part, ruptured the membranes at the commencement of labour: in face-presentation, mistaken for breech, by a midwife of great repute, who assured me my attendance was required only to confirm her opinion: in hæmorrhage during labour, where the flooding was suffered to go on to an extent that recovery was at first precarious, and in the end very protracted; and in other cases of hæmorrhage, both with placenta retained and after its removal, in which complete ignorance was shewn of the signs afforded by external examination, and a total neglect of pressure by hand, or support by abdominal belt. Lastly, in the case of a woman subject to flooding during the separation of the after-birth, it was the midwife's constant practice, immediately after labour, to get the patient upon her legs, that the coagula might the more readily come away; or, to use the midwife's words, "to make her a clear woman."

I might mention other instances of malpractice on the part of midwives, of which I have heard, as after-birth torn away in part; navel-string snapped off; the arm broken, or, when presenting, pulled down; sloughing and ulceration of soft parts from protracted delivery, or their laceration from the child being precipitately forced away, &c.; but I ground my remarks upon what I have witnessed myself.

If you will allow this plain statement to appear in the Medical Gazette, the subject may chance to fall into more able hands. The instruction of midwives is an humble, but really a very necessary and important matter; and I shall be glad to see the attention of the public directed to it.

I remain, sir,
Your very obedient servant,
F. Borrett,
M.D., M.R.C.S., Accoucheur to the Norwich Lying-in Charity.

Norwich, April 26, 1836.

* At the establishment of the Norwich Lying-in Charity, in 1832, it was resolved—"that all midwives admitted to act under the Charity be instructed by the accoucheurs;" and country subscribers were requested to select in their own, or adjoining parishes, suitable persons to be instructed in practical midwifery by the accoucheurs of the Charity. Besides the midwives thus instructed, two have received instruction in London.

ANEURISMAL NEEDLE,

INVENTED BY DR. MOTT.

[The Description communicated by Mr. Mayo.]

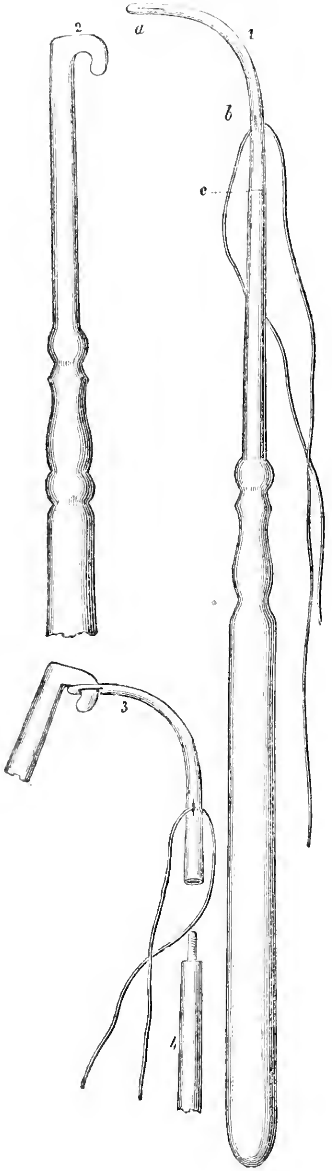
The adjoined figures represent this instrument.

1. The aneurismal needle armed: it has two eyes; that at *b* is intended to receive the ligature; that at *a* is intended to receive the extremity of a blunt hook, after the needle has been passed below the artery.

2. The blunt hook, which is to be introduced into the eye (*a*) of the needle, to fix and steady it, when the latter has been passed below the artery; so as to allow the operator to unscrew the handle of the needle. The place of the screw is at *c*, fig. 1.

3. The needle detached from the handle, and ready to be drawn up with the ligature on the other side of the artery.

4. The male screw, in which the handle of the needle terminates.



The difficulty hitherto experienced has been to make an instrument which would at once be steady and firm in the hand while passing below the artery, and at the same time allow the needle part to be afterwards readily caught on the other side of the vessel, detached, and drawn out of the wound. Dr. Mott's aneurismal needle is perfectly adapted to fulfil all these objects.

George-street, Hanover-square,
May 2, 1836.

ANALYSES AND NOTICES OF BOOKS.

" L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

Lectures on Subjects connected with Clinical Medicine By P. M. LATHAM, M.D. Fellow of the Royal College of Physicians, and Physician to St. Bartholomew's Hospital. 1836.

THESE lectures have already appeared in the Medical Gazette, and are now reprinted in one neat moderate-sized volume. We strongly recommend them to our readers; particularly to pupils attending the practice of our hospitals. They will tend greatly to assist the due appreciation of symptoms, and contain numerous original opinions and important practical facts expressed by the author, in a style sometimes quaint, but at all times peculiarly his own. As to the plan and matter of the volume, in truth they are unlike any thing we have in the English language ; and perhaps the simplest method of conveying an adequate notion of them to our readers, is to quote Dr. Latham's own account of them, as contained in the Preface :—

" Considering the time of life at which the majority of those who are intended to practise physic begin their professional education, few can be supposed at once to understand the objects with which it is conversant. I have therefore endeavoured to put in as clear a light as I could, what is the nature of Facts and Opinions, and Theories and Principles, in medicine; and what concern the clinical student has with each; and how important it is for him rightly to distinguish between one and the other.

"With respect to the mode of conducting his inquiries at the bed-side, I have suggested to him how to observe and what to observe; what demands his present attention, and what may wait the season of his more mature experience; what books to read and what to abstain from reading; and the sort of knowledge which is principally auxiliary to clinical medicine.

"But the subject to which I have chiefly desired to direct the student's attention is Semeiology, or the Doctrine of Symptoms; not for the sake of pointing out the symptoms of particular diseases, but of showing what symptoms are in their own nature; what sense, or rather what various senses, they bear; and what is their import and value in enabling us to judge of all diseases which are capable of being known and treated in the living man. For this purpose I have constructed no system, and have adopted only so much of arrangement as was necessary for the convenient discussion of the subject

"The lectures now published, embrace one part only of Semeiology. The inquiry, as far as it has gone, has been occupied with the evidence, which each organ is capable of furnishing, of its own diseases by symptoms directly referable to itself, and involved in the actual state of its sensations and functions and structure. This is the simplest and the easiest part of Semeiology.

"Among such direct symptoms, I have chiefly dwelt upon those by which Auscultation has enabled us to make discovery of diseases of the lungs.

"Auscultation is capable, I have thought, of being greatly simplified for practical purposes. At all events, unless it be so, it can neverbe successfullytaught; the knowledge derived from it must be confined to a few physicians of hospitals, and the profession at large can never expect much benefit from its use.

"Whether I have succeeded in accomplishing what I think so desirable, and have cleared Auscultation of its mystery in any degree, others must judge. But thus much I can safely say, that the intelligent student, by attending to the few characteristic sounds which I have pointed out, and taking pains to understand their import, and guarding himself against over-refinement, is able in a few weeks to discern the leading truths connected with Auscultation, and in a few months to use it and trust it as his safest guide in the diagnosis of pulmonary diseases.

"Such are the objects which these lectures have in view. They do not pretend to teach the clinical student any single thing peremptorily or dogmatically, but only to furnish him with certain aids and assistances by which he may be better able to teach himself."

A Treatise on the Diseases of the Eye and its Appendages. By Richard Middlemore, M R.C.S Surgeon to the Birmingham Eye Infirmary, &c. In 2 vols. pp. 809 and 844. London, 1835.

This is a very elaborate and comprehensive work, containing the results of the author's individual observation and experience, together with an abundant harvest gathered from the labours of his predecessors in the same field. The style is perspicuous, and the matter, whether original or selected, is, for the most part, unexceptionable: blemishes might certainly be found*; but it would be difficult to find a work, extending to nearly seventeen hundred pages of close letter-press, of which the same might not be said; and we have no hesitation in offering it as our humble opinion that the work will be found a very useful manual, by those interested in the pathology and treatment of diseases of the eye.

An Essay on the Laryngismus Stridulus, or Croup-like Inspiration of Infants. To which is appended, Illustrations of the General Principles of the Pathology of Nerves, and of the Functions and Diseases of the Par Vagum, and its principal Branches. By Hugh Ley, M.D. &c. &c. Illustrated with Plates. pp. 480. London, 1836.

Dr. Ley's views on the several subjects treated in the present volume, were fully brought before the readers of this journal, in a series of valuable papers published by that gentleman in the Medical Gazette, in 1835. The papers alluded to have been here brought together, so as to present the observations and experience of the author in a more

* We have received the letter signed "Philalethes," but think his remarks hypercritical.

continuous and elaborate form. The pathology of the disease is further illustrated by several well-executed plates, showing the effects of enlarged bronchial glands in compressing various nerves.

An Introduction to Botany. By John Lindley, Ph. D., F.R.S., L.S., and G.S. 1 vol. 8vo. London, 1835. Second edition, with corrections and numerous additions.

The lengthened notice, and the praise we bestowed on the former edition of this work, render it unnecessary to devote much space to the present. We merely intend to point out the alterations and improvements which have been made in this volume, compared with its precursor. Though it contains only twenty-five pages more than the preceding edition, yet a great deal of room for the introduction of new matter was gained by throwing out the fourth chap. of book iii., the omission of which we recommended when discussing the merits and demerits of the first edition. The room thus afforded is far more instructively occupied by more ample details respecting botanical geography, a subject which Dr. Lindley was the first to introduce into an English elementary work on botany. Also, a portion of the space thus gained, is appropriated to embodying the discoveries and views on the most important points which have been made in the interval since the former edition was published, embracing a period of three years. Thus, much of the most valuable parts of Decandolle's "Physiologie végétale," many of the ingenious investigations of Brown, Brongniart, Mirbel, Mohl, Slack, and Fritzche, have been incorporated into the text of the original. The interesting views of Braun on the spiral arrangement of leaves have been treated of, and elucidated, principally with the aid of the diagrams of Professor Henslow, whose liberality in communicating them, deserves the highest eulogium. The only other English work in which an explanation of this beautiful law of vegetable development is to be found, is Professor Henslow's "Principles of Descriptive and Physiological Botany," which we so lately noticed. Taken altogether, we have no hesitation in pronouncing this Introduction to Botany, by Dr. Lindley, to be the most valuable and perfect in any language we are acquainted with; (and our acquaintance with elementary works on botany in different languages, is not very slight). We, therefore, recommend all those who desire to become acquainted with botany as a science, to procure this volume. Though the quantity of matter has been increased, and the wood-cuts are more numerous, the price is the same as that of the former edition.

MEDICAL GAZETTE.

Saturday, May 7, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

Cicero.

MANAGEMENT OF PAUPER PARISH CHILDREN.

Enough, one would think, enough to make the heart sick, has already been made known concerning the workings of the new Poor-Law: yet, much as has transpired, a great deal more, we fear, remains behind, still to be disclosed to an offended and indignant public. We may say we have hitherto only seen the Poor-Law functionaries in their dealings with adults: adults, however, the impression is, can generally help themselves, or at least seek some redress; but what are pauper infants to do? We can conceive nothing more revolting than the cruel, unfeeling treatment of helpless children — treatment, more especially, having much the appearance of being deliberately planned for a fatal purpose. What is commonly called *infanticide*, though a capital offence according to the laws of most nations, is, in our view of it, far less criminal. Pride, fear, hatred, revenge, or some other headstrong wilful motive, may operate in the one case, where the victim, too, is hardly considered a regular denizen of the "breathing world;" but, in the other, one sole motive can be

assigned—the hypocritical sordid one of economy—a heartless grudge of a little paltry expenditure, and that where the victim has already begun to be a rational being, susceptible of its hopes and fears, and capable, with ordinary attention, of being made a useful member of society.

It is now about six weeks since the newspapers reported a very extraordinary inquest held on a pauper child, at the Workhouse of St. James's, in Poland Street. Some most appalling facts were elicited in evidence: yet we did not think ourselves authorized to comment on the details, as then published, as there was but too evidently considerable party feeling mixed up with the whole proceedings. Since, however, a principal witness has laid the full particulars before the public*, conceiving himself, as it would seem, placed in a predicament which required the whole truth to be known, we have no hesitation in availing ourselves of the documents collected by him in his interesting pamphlet.

The verdict pronounced at the inquest just alluded to, was a special one—setting forth "that the death of the deceased child was caused by mesenteric disease of a severe nature, produced by a scrofulous habit of body;" and the jury added, "that no blame whatever attached to Mr. Aubin, the person at whose establishment the pauper children are put to nurse, &c."

We have no intention whatever of meddling with the facts relating to the particular death which gave rise to this inquiry. Our observations are rather directed towards the system of management adopted with regard to pauper parish infants.

At Norwood, it appears that there is an establishment kept by a Mr. Aubin, at which some hundreds of these poor children, belonging to no less than 56 parishes, are lodged and nursed. The parish of St. James alone sends thither about 80. And when we consider the situation of the house, in a high and exposed situation, the very limited extent of the play-ground, the meagre dietary, and the huddled manner in which the infant paupers are put to sleep together, we cannot wonder at the dangerous state of body to which a large number of them are reduced, or the mortality which at times so strikingly prevails.

On visiting the place not long ago, Mr. Pettigrew found 17 of the 80 children belonging to St. James's labouring under serious illness—disease of one character—namely, a deranged condition of the digestive organs, evidently connected with a morbid state of the mesenteric glands.

The following description, when first published, struck many as being extravagantly overdrawn: but the subsequent inquest confirmed the principal facts; and the evidence adduced by Mr. Pettigrew, in the present publication, seems fully to warrant the veracity of his statement.

"The picture is almost too horrible to describe. I found the children with large heads, tumefied bodies, shrivelled and wasted limbs—mostly in a sitting posture, with their legs crossed; and I found upon inquiring of the nurse of the ward No. 9, in which the greater number of the sick were placed, that any change from this position occasioned them pain, and caused them to cry. The continued posture to which it is evident they have been accustomed has given to many a curvature of the bones of the legs; they have, in short, become ricketty from the want of exercise, and, I fear, an insufficient supply of wholesome nourishment. They labour under mesenteric disease in its various forms and stages. Some

* The Pauper Farming System: a Letter to the Right Hon. Lord John Russell on the Condition of the Pauper Children of St. James, Westminster, as demonstrating the necessity of abolishing the Farming System. By T. J. Pettigrew, F.R.S. Surgeon to the Charing-cross Hospital, &c. 8vo. pp. 43.

have discharges of blood and mucus; some from fifteen to twenty evacuations daily—all suffering from extreme thirst, and now, that under the judicious advice of the surgeon of the parish, they are taking proper nourishment, they become flushed upon receiving it. The state of their skin marks the condition of the internal organs—it is dry and scurfy—in many places, both on the head and limbs, particularly the lower ones, *ulcerated*. Languid and feeble circulation, and other marks of general debility, are strikingly apparent. Their glands are enlarged—their bodies swollen and painful to the touch. Some I found in the greatest state of prostration. The sight was truly appalling."

Now it is worthy of remark, that these poor little creatures were neither brought together from one locality, nor derived from one stock. As Mr. Pettigrew says, "It is quite clear that such an uniform character of disease among so many children, the offspring of different parents, must be the result of the particular manner in which these children have been nursed and maintained."

An impure atmosphere breathed over and over again by the wretched children, in their crowded apartments, is with reason presumed to be a primary cause of their sickly condition. It appears that in the male ward of Mr. Aubin's establishment, "there are no less than *ninety* beds; and that in each of these beds, according to the size of the children, two or three are placed to sleep. The congregation of so many children in one apartment, with the windows closed as they must necessarily be at night during the hours of rest, is highly improper and prejudicial to health. It is a fertile source of disease. Nearly 300 children sleeping in one room!"

But there is abundance of testimony regarding the state of these poor parish infants, in addition to that of Mr. Pettigrew. On the 3d of March last, Dr. Robert Lee visited Norwood, at the request of some of the parish authorities, and made a report to this effect—that of the 52 St. James's children, then at Mr. Aubin's, 15 only were in a tolerable state of health. "There were nine seriously indisposed, and the whole of the remainder were suffering from a deranged state of the stomach and bowels, with symptoms of scrofulous disease more or less apparent."

This statement was confirmed by Messrs. Braine and French, medical officers connected with the parish, and was speedily followed by a second report, in which Dr. Lee notices the probable causes of such a lamentable state of things.

"In endeavouring to assign the causes which produced this sickly condition of the children, I am fully aware of the difficulty of the task, and am ready to acknowledge that an opinion formed upon this subject with the greatest caution may nevertheless be erroneous.

"Although some of the children were reported to be ill in the month of September, yet I am inclined to believe that the exposed situation of Norwood, the severity of the weather during the winter, and the consequent crowding together of the children for longer periods than usual, and the deficiency of proper exercise in the open air, necessarily resulting from these unfavourable circumstances, have mainly contributed to impair the health of the children.

"The want of a regular Medical Superintendent of the Institution, and of a sufficient number of experienced nurses, has doubtless also contributed much to extend and aggravate disease among the children."

A passage or two may also be extracted from Dr. Tweeddale's report, made in September last, when there were eighty children belonging to St. James's parish at the Norwood establishment. Having noticed the respective conditions of the boys and the girls, he sums up in these words:

"By this you will perceive *that* FORTY, *or one-half* of the children ONLY *may be considered in a state of perfect health;* twenty are in a TOLERABLE *state*

of health, with the exception of the ringworm; five with scabies, whose healths are only slightly impaired; seven are suffering from mesenteric fever, accompanied with enlargement of the glands; seven are rickety from scrofulous constitution; and one chronic inflammation of the eyes from the same cause.

"*I am decidedly of opinion that most of these diseases may be fairly attributed either to improper or deficient nourishment*, and would recommend that the elder children should be supplied with meat daily, varying the quality, such as roast meat, either beef or mutton, corn beef or pork, boiled or hashed mutton, broths, beef-steak puddings," &c.

In the last paragraph Dr. Tweeddale, in our opinion, touches at the very root of the evil, and points out what, together with free air and wholesome exercise, must be mainly instrumental in the prevention, if not in the cure, of the loathsome maladies in question.

Dr. Lee, indeed, in his second report, does not attribute so much of the mischief to improper food, as the physician just quoted does: nay, he endeavours to exculpate Mr. Aubin and his institution from any such imputation.

"The disordered state of the digestive organs observed in many of them might lead to the supposition that there was something defective in the quantity or quality of their food; but the dietary stated by Mr. Aubin to be in use at his institution, is essentially the same as that in use at other extensive establishments which I have recently visited, and where I found the children in a state of good health."

But who can reasonably doubt how much the deficiency of a proper supply of nutritious food must be at the bottom of the evils suffered by these poor children, when he hears the miserable allowance vouchsafed for their support by the parish authorities? Will it be believed that the pauper-children of St. James's, Westminster, are actually farmed out at 4*s.* 3*d.* a head, per week, this sum being intended to cover all expenses, lodging, clothing, food, medical attendance, medicines, and all other necessaries, *burials* included!

To point out a better system for alleviating the miseries, and improving the management of these poor helpless infants, we are aware would be a hopeless task, if directed to the obtuse ears and hardened feelings of the persons who have the matter at present in their own hands. Yet we cannot close this short notice without suggesting—what, indeed, common charity dictates—that, for the management of these infant asylums there ought always to be procured, in the first instance, the steady and able services of a medical superintendent, and that he should be assisted by the well-tried and vigilant experience of proper nurses. Without this, and the disbursement of a liberal expenditure in the providing of good and sufficient food, and in securing a healthy situation for their residence, there can be no hope of any salutary change being effected—whilst a perseverance in the present order of things, *prejudicial ultimately to the true interests of the state, and revolting to humanity*, can only be attended with ruinous and fatal consequences.

KING'S COLLEGE.

We mentioned last week, that Mr. Green had resigned the chair of Surgery; we hear that he is to retire from private practice, but to retain his hospital, and his professorship at the Royal Academy. It is rumoured that Mr. Hodgson, of Birmingham, has been invited to become his successor at King's College.

Dr. Francis Hawkins has resigned the Professorship of Medicine, and is to be succeeded by Dr. Watson. By this arrangement a vacancy will take place in the chair of Forensic Medicine.

The chair of Materia Medica, vacant by the resignation of Dr. Bisset Hawkins, has not yet been filled up; but it is presumed that Dr. Gregory, who delivered the spring course of lectures, will be elected.

In the Council also some changes have occurred. Sir Henry Halford has retired, and Mr. Green has been nominated in his place.

COLLEGE OF SURGEONS.

Sir Charles Bell (not Mr. Green, as stated last week) has resigned his seat in the Council of the College of Surgeons, and has been succeeded by Mr. Babington.

The new building will very shortly be completed; soon after which, Mr. Owen, who has been appointed Hunterian Professor of Anatomy and Physiology, will commence an extended course of lectures in illustration of the preparations in the museum.

Mr. Stanley has been appointed Professor of Anatomy and Surgery.

MIDDLESEX HOSPITAL.

AMPUTATION AT THE HIP-JOINT.

On Monday, in last week, the operation of amputating at the hip joint was performed by Mr. Mayo, at the Middlesex Hospital. The patient's name is Hannah Allen; her case is described in Mr. Mayo's Outlines of Pathology, where the necessity of this operation is anticipated as a possible contingency. We understand that the patient has gone on most favourably, and may be considered out of danger. The details of the operation, and of the subsequent progress of the case, will be given in this journal, when a sufficient period has elapsed to enable us to judge of the result. There were present at the operation, besides Mr. Arnott and Mr. Tuson, who assisted Mr. Mayo, Mr. Stanley, Dr Clark, the Professor of Anatomy at Cambridge, and Dr. Valentine Mott, the celebrated surgeon of New York. Dr. Mott saw this patient a year ago with Mr. Mayo, on his former visit to London: he entirely concurred with Mr. Mayo as to the expediency of the present operation.

The amputation, which was commenced after the femoral artery had been tied, occupied about half a minute: not more than twelve ounces of blood were lost.

The operation was performed for neuralgia of a stump. It may be interesting to mention, that Sir Astley Cooper amputated an arm at the shoulder joint, for the same affection of the nerves of a stump, and that the patient was permanently cured. Mr. Bransby Cooper met with the like success in a case in which the hand had been amputated for neuralgia by Mr. Tyrrell: the disease returned in the stump, when Mr. Langstaff amputated the arm above the elbow: the disease again returning, Mr. B. Cooper amputated the limb at the shoulder-joint; the patient recovered, and has since been entirely free from suffering.

ROYAL ASIATIC SOCIETY.

Mr. Royle on the Productions and Resources of India.

At the general meeting of the society, on the 19th March last, the Right Hon. C. W. Williams Wynn, M.P. President, in the chair, the subject of the formation of a Committee of Agriculture and Trade was introduced. On the table was placed for inspection, in a series of cabinets, a very extensive collection, made by John Forbes Royle, Esq., comprising upwards of a thousand specimens of the vegetable and mineral productions of India, consisting of seeds, woods, barks, resins, gums, earths, metals, &c.

The Right Hon. Holt Mackenzie read an able paper, chiefly on the *commercial* resources of India: his remarks, however, he begged the meeting to consider as merely subsidiary to those of Mr. Royle.

Mr. Royle then addressed the society, and began by giving an account of the way in which his attention was originally drawn to the subject.

"I was written to, at first privately, and afterwards officially through Dr. Wallich, by my late friend, Dr. John Adam, then Secretary to the Medical Board of Bengal, to turn my attention to the *materia medica* of India, in order to ascertain whether the public service might not be rendered less dependent upon the supplies from Europe, either by substituting articles indigenous in the country, or cultivating exotics in the most suitable climates of the plains and mountains of Northern India.

"The subject proposed was sufficiently extensive, and the means of investigation apparently but limited. Dr. Fleming's valuable *Catalogue of Medicinal Plants and Drugs* contained but a small portion of those enumerated in the Persian catalogue called *Ulfaz Udwiyeh*, translated by Mr. Gladwin; and Sir Whitelaw Ainslie's extensive and very valuable work on the *materia medica* of India, having been compiled in the Peninsula, it was doubtful whether the same articles were procurable in the north as in the south, and, if so procurable, by what means they were to be obtained, as there was reason for thinking that the same names were not always applied to the same things. I, therefore, had recourse to the native works on this subject, which, I learned, were both numerous and comprehensive. But here the difficulties were still greater; for it was impossible to ascertain, with precision, what was generally described under an Arabic name, though assisted by its synonymes in Persian, Hindee, and frequently metamorphosed Greek, as well as by a

comparison with other articles, which, unfortunately, were in general as little known as those they were intended to elucidate.

"In this dilemma, the only resource was to get acquainted with things, in order to have an idea of the import of words. I, therefore, directed specimens of every article in the bazaars to be brought me, whether found wild in the country, or the produce of agriculture—whether the result of home manufacture, or of foreign commerce—whether of the animal, the vegetable, or mineral kingdom—whether useful as food or as medicine, or employed in any of the numerous arts which minister to the wants or comforts of man. I determined, as these were brought me, I would make a catalogue of the whole, with their various synonymes, inserting, whenever it was possible, their natural history and English names, so as to connect the knowledge of the west with the products of the east. It will require little to convince the Society, that when I commenced I was perfectly unconscious of the nature of the task I had undertaken, or the extent of the labour I had voluntarily incurred. That this was not of a trifling nature, will be evident by merely examining my catalogue of articles described in Persian works, many of which I was, of course, unable to obtain.

"Such was the origin of this collection in the remote station of Saharunpore, one thousand miles north-west from Calcutta, and almost the last of our stations in that direction. It was added to at Delhi and Agra, as well as in my progress down the river at Allahabad, Mirzapore, Benares, Patna, and completed as much as time would allow during my short stay in Calcutta.

"In coming before you, therefore, I cannot regret either the labour or time which both this catalogue and collection have cost, as they give me the advantage of recommending you, to do only that which I myself have done, and of shewing you, that if a single individual, with no exclusive attention to the subject, but while his time was fully occupied with medical duties, and the investigation of the natural history of the country, has been able to bring together so many articles from one part only of India, what may be expected from the attention of the Society, when turned to the three presidencies, as well as to other parts of Asia? It was to shew you that there is nothing visionary in this project—to convince you of the extent of the field of investigation—to speak to your eyes, while Mr. Mackenzie satisfied your understandings, that the collection has been laid open for your inspection, and not, be assured, for the purposes of display."

We can only give in the shape of extract some of the more remarkable passages which struck us in the perusal of this excellent address. Every part of it is indeed highly valuable and interesting; but we are obliged to have regard to our limits, as well as to a proper selection of the topics more particularly suited to the Gazette.

Valuable products of India.—It will, perhaps, be objected—and nothing is ever proposed to which objections are not made—that the majority of articles here exhibited are probably of little value. This may possibly be true; but I am very certain, that among them there are many very energetic as medicines, and others valuable in some of the most useful arts: indeed, it would be extraordinary if it were not so, considering the perfection of many of these arts in so early civilized a nation as the Hindus; where, from the processes being as simple as they are effectual, we may infer the intrinsic goodness of the materials which are employed.

Of this we shall be better able to judge when the more remarkable substances are subjected to examination, which may be done with greater facility than is at present apparent, either by taking them according to their uses as food or medicines, or their employment in the several arts; or, if we choose, by arranging them under the several heads of woods, barks, roots, seeds, &c.; or, preferably, according to their chemical nature, whether this be fecula, fit for food, as that afforded by the several cultivated grains, of which no where is the variety greater than in India; or in stems, as the sago-palms; or in the curcuma or arrow-root of India, yam, sweet potato, salep, or arum; saccharine principle, as in the sugar-cane and palm-trees; gums and mucilages, as in the acacias, and a variety of other plants; gum-resins, resins, varnishes, oils, either fixed or volatile, with fatty substances, as that yielded by the phulwa (*Bassia butyracea*) of Almora; together with the vegetable acids, as citric and tartaric; or the alkalies, as pearlash and barilla. If we want fibre fit, from its tenacity, for rope-making, we shall find a multiplicity of substitutes for the hemp, and, indeed, the hemp itself. If we want astringents for tanning, we shall find no lack of barks, woods, and berries, with the required properties. If we desire to aid the dyer with fresh tints in varying our ever-changing manufactures, those who have witnessed the rich colouring and gay variety of an Indian festival, or Hindú bathing ghaut, will require only their recollections to assure them that nature is not less bountiful in the east than elsewhere. If we add to these an examination of the several ores of the metals,

as iron, copper, and lead, together with the varieties of coal which we know to abound in India, and without alluding to the digging for diamonds, or the washing for gold, which would look more specious on paper than prove profitable in speculation, we shall find that some new mineral is yearly added to the list of Indian products; as magnesia at Madras, alum in Nepâl, and manganese at Ajmere: while we have yet to consider many valuable products from the animal kingdom, as hides, horns, elephants' teeth, wax, musk, &c., it might almost be said that India is yet a region of unexplored mines in all the kingdoms of nature. In inviting you, therefore, to explore so fair a field, I do so with the utmost confidence, that, if the vigour of our proceedings be at all commensurate with the variety of products, many years will not elapse before we have to congratulate ourselves on the result of our proceedings. If, while making the above classification, we were to arrange in the same way those substances which now form the commerce of the world, and place them in columns parallel to those which are the products of India, we should see at a glance the proportion which these bear to the whole; and, ascertaining where we had an opponent to rival, or a blank to fill up, obtain, with a knowledge of its present resources, an idea of the future prospects of India.

Rhubarb—Caoutchouc.—If we look to the commercial history of rhubarb, we find that the best, though produced in Tartary and Tibet, traverses all Asia, to be sold in Europe under the names of Turkey and Russian; while the Siberian frontier-town of Kiakhta is twice as far, even from the eastern limits of the true rhubarb country, as are the British territories in Upper Assam; while there is very good rhubarb within the Himalayas, and some of very excellent quality near its frontiers: is it not reasonable, therefore, to suppose that India may soon export some of the superior, instead of only the inferior, kinds of this drug? The recent extension in the uses, and, consequently, commerce, of caoutchouc, induces a hope that advantage will now be taken of the suggestions of Dr. Roxburgh, in his account of the caoutchouc of *Ficus elastica*, and other plants (*Fl. Ind.* iii. p. 541), as has already been done with respect to that of *Urceola elastica*; and, that as shell-lac, caoutchouc, flax, and rape-seed, have so recently become extensive articles of export, so it will be with other resins, more astringents, and not a few oil-seeds.

Rice—In connexion with rice, I may mention a fact which will show that even the most intelligent may make mistakes, when they will not take the trouble of understanding the subject in which they make experiments. Thus, a gentleman, wishing to improve the cultivation of rice in India, which he thought, from the specimens sent to this country, must all be inferior to the American, actually sent some bags of American rice to his correspondents in India, which, in the process of cleaning, had been *deprived of the embryo* of the future plant, for which the rest of the seed is only intended as nourishment during the process of germination. I will not detain you further with such instances, though these might be indefinitely multiplied; but I may adduce one from another kingdom of nature, where an equally inconclusive experiment was pronounced to be a failure. This was in the case of the cochineal insect, of which the *Grana sylvestra* variety was introduced from Rio Janeiro into Calcutta, and not the *Grana fina*, from Mexico. The insect was found fault with as being too ravenous, and its produce as very inferior in quality; and the inference has been drawn, that India is unsuited to the production of cochineal. If the Mexicans had been anxious to improve the breed of their horses, and had imported the vicious *tattoo* of India, instead of the noble Arab of the desert, the inferences from failure in their first attempts would have been equally legitimate,

Opium.—Opium, so long considered necessarily inferior, if it was East Indian, has been of late years produced of a very superior quality, as is evident by the quantities of morphia yielded by different kinds as given by Dr. Smyttan:—Bengal, 3; Malwa, 6; Turkey, 6½; and some from Bareilly as high as 8½ per cent. Specimens of all these should be somewhere deposited for the inspection of those interested in the subject, wherher physician, chemist, or merchant *.

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* Since this paper was read, I have been informed by Mr. Harpur Spry, F.G.S., of the Bengal Medical Service, that the opium cultivation has been extended to the Cawnpore district; and the opium produced there "has been reported by the person appointed to test the drug, as the best quality of all that is received at Benares." "The cultivation was attempted a few years since, and proved a failure; but owing to the exertions and good management of Mr. Reade, the deputy collector, the Indian government is said to have derived a net profit, in the first year (1833), of 50,000 rupees; the second year, 75,000 rupees; and last year, the quantity was expected to be 200 maunds; and it will go on gradually increasing." At Saharunpore, still further to the north-west, I myself made some opium, in 1829, which was submitted by Mr. Mackenzie, then Territorial Secretary, to the Medical Board, of which one specimen was pronounced, "perhaps equal, but certainly not superior to," and others, "resembling in almost every particular," some of an improved quality made by Capt. Jeremie the previous season in Behar, which the Medical Board, however, had "no hesitation in considering equal, if not superior, to the finest Turkey that comes

Senna—Henbane.—That I may not be accused of dealing only in theoretical declamation, I trust it may be allowed me to bring forward a few instances where I have successfully reduced some of these principles to practice. Of these I will mention the *senna* as a tropical, and the *henbane* as a European plant, both which were cultivated in the Saharunpore Botanic Garden, and nearly in the same field; but the former, in the rainy season, and the latter, during the cold weather months. Both were subjected to experiment in the general hospital of Calcutta, when the late Dr. Twining pronounced the extract of henbane to be of "most excellent quality, and the senna leaves as "equal to the best he had ever seen." The last being an extensive article of commerce might be cultivated in every part of the plains of India, as Tinnivelly and Saharunpore are separated by a breadth of territory of 20° of latitude; and where the henbane was grown, other European herbaceous drugs might, no doubt, be cultivated with equal ease.

Tea,—black and green distinct Species.—The discovery of the tea-plant in Upper Assam, will, I hope, be allowed to be a strong confirmation of the theoretical grounds on which its cultivation was recommended in different parts of the Himalaya, both by Dr. Wallich and myself. I did so chiefly on the great coincidence in latitude, as well as in many points of climate, but principally in the great resemblance in the vegetation of parts of the Himalaya with that of the tea countries, as far as we are acquainted with these, and the finding in the former many plants which are not known to exist elsewhere, except in China and Japan. With respect to the tea, I may also add, that the opinion of Mr. Loddiges, Dr. Hooker, and especially of Mr. Reeves, which I did not hesitate to adopt, after examining the plants in Messrs. Loddiges' extensive nursery, of there being two distinct species of *Thea*, yielding the black and green teas, has been fully confirmed by Mr. Gordon's last visit to China, as may be seen in the March Number of the *Asiatic Journal*.

Climate of the higher regions of India.—As the diminution of temperature in the atmosphere is very gradual, according to elevation, so is the disappearance of tropical forms as we ascend up mountains: hence, we find such plants diminishing in number and size as we ascend either the Andes or the Himalayas. Their existence at considerable elevations may probably be favoured by the range of the thermometer being less on mountain tops than on plains, even where the mean temperature is the same; and, perhaps, the effect of the extremes of temperature may be less injurious when transmitted through a more rarefied medium. But in mountains under the influence of tropical rains, a peculiarity of circumstances occurs analogous to that so well described by Baron Humboldt in the Andes, as the region of clouds; so in the Himalayas, the thermometer does not vary ten degrees during three months, at seven and eight thousand feet of elevation; and even when rain does not fall, there is constant humidity, from the air charged with moisture in the heated valleys rising to and depositing it on the cool mountains. The cloudiness, at the same time, preventing the full influence of the sun's rays, and at night the radiation from a mountain ridge bearing but a small proportion to the mass of the atmosphere, comparatively little cooling takes place, and the thermometer is but a few degrees cooler in the morning than it was on the previous evening: so that the same equability which we have observed at the base of the mountains, is observed, from the operation of other causes, to take place at considerable elevations. This being combined with moisture, we have two of the characteristics of a tropical climate, and find that, in such circumstances, a less degree of heat is essential for the maintenance of plants otherwise indicative, though only annuals, of a tropical vegetation. Of these may be instanced one of the *Scitamineæ*, the family to which the ginger and cardamom belong, at as great an elevation as nine thousand feet, with balsams, bigonias, cyrtandraceæ, a Smithia, cassia, &c.: even a bamboo is found as high as ten thousand feet; but its annual stems are yearly levelled by the falls of snow, while the roots are protected by their subterranean situation from the great changes of temperature. We need not be surprised, therefore, that rice should be cultivated at such elevations even without the assistance of irrigation.

Variety of Indian productions.—Such are a few general views respecting the geography of plants in connexion with climate, and with reference to cultivation. Between the extreme points of a tropical and a polar vegetation, we might shew a series of gradations, and find an equivalent for each within the limits of British India: but these would lead into unnecessary detail; and the object has, perhaps, been sufficiently gained, if I have been successful in shewing in what way the distribution of plants is connected with the im-

into the market at home." It was on these grounds, and from the superior quality of the opium cultivated in the Himalayas, that I, two years since, published the opinion, that "if it were an object to make the best opium for the European market, there is no doubt that Malwa, and the north-western provinces, would be best suited for the experiment."

provement of the resources of a country, particularly when we wish to acclimate the productions of other climes in one like India, which embraces within its limits so great a diversity of climates.

Of this, even the most sceptical may be convinced, if it be considered, that, suited as are Ceylon, and the southern extremity of the Peninsula, for cinnamon, nutmeg, cacoa; and the coast of Malabar, for pepper, cardamoms, coffee, and teak,—they are not more so than are Bengal, and the lower provinces, for their rich cultivation of rice, indigo, and silk; with ginger, turmeric, long pepper, and betel-leaf, luxuriant bamboos, and the bread-like plantain, ever-useful cocoa, and slender areca. The northern provinces having a less rich soil and drier climate, may boast of their wheat, barley, and potatoes at one, and rice and sorghum at another season, as well as of their fitness, together with Malwa, Bundlecund, and parts of the Peninsula, for the production of cotton, tobacco, and opium; while sugar, numerous oil-seeds, and substitutes for hemp and flax, are produced in nearly every part. Almost every jungle is occupied by the lac insect, and a kind of kino is yielded by the dhak butea. The most barren hills afford olibanum, and the most arid-looking plains will nourish the gum secreting acacias, and the mouhwa, or bassia, of which the flowers are fermented into a spirit, the seeds expressed for their oil, and the wood valued as excellent timber. Even in the western desert, the lakes yield salt, and their shores are lined with plants, which are burned for barilla. The mountains, though their bases are lined with a tropical and unhealthy jungle, abounding in valuable timber, have, at certain elevations, a delightful climate, and productions analogous to European countries: here we may soon hope to see the tea-plants a thriving culture, and the hemp turned to useful account; and though the cold and bleak tops of these mountains, and the plains on the northern face, appear barren and unprofitable, here their lakes abound with borax, and their valleys with vines; and, in addition, we have spikenard and rhubarb from the vegetable, with musk from the animal, kingdom.

The thanks of the Society were unanimously voted to Mr. Royle, for his valuable communication: after which the meeting adjourned.

There are but two kinds of death—either that of the nerve-life (sensibility), or that of the blood-life (irritability).—*Hufeland.*

THE NEW POOR-LAW SYSTEM

OF PROVIDING

MEDICAL ATTENDANCE.

ITS INEFFICIENCY AND ABSURDITY DEMONSTRATED.

To the Editor of the Medical Gazette.

Sir,

After the various articles which have appeared in the Medical Gazette, and in other journals, on the subject of Medical Attendance on the pauper population, it may appear superfluous to direct the public attention further to the erroneous principles laid down by the Poor Law Commissioners for the formation of medical contracts; but having thought it expedient to draw up and submit to the members of a Board of Guardians recently formed, a statement of the evils complained of by the profession and by the poor, it has occurred to me that the desired object might be promoted by the publication of this statement in your journal, which, I am aware, occasionally meets with unprofessional readers. I may begin, then, by remarking, that the importance of the subject may not be duly estimated by those who live principally in London or in large towns, where the great number of hospitals and dispensaries open to all comers, renders it of little consequence who fills the office of parish surgeon. But in the country, where those who are unable to pay for medical advice have no such resource, it becomes of the greatest consequence, both to the pauper and to the rate-payer, that a proper appointment should be made. Cases have but too frequently occurred where heavy expenses have been entailed on parishes by the long continued illness or the death of the father of a family, arising from neglect on the part of the medical attendant; and this result may with justice be attributed to the short-sighted economy of the parochial authorities, who, to save a small sum in the doctor's salary, have appointed a person who has unworthily filled the office.

I think the principle "of retaining medical services by tender, and of throwing the appointments open to practitioners at a distance, and to the profession at large," cannot fairly be applied: for what are the qualifications necessary in the holders of such appointments? Doubtless, in the first place, skill and sufficient ability to treat the various diseases which will come under their observation; and so far, it cannot be imputed to the Commissioners that they have done wrong in directing the

acceptance of the services of any person who is legally qualified to practise. But with ability should be united integrity and a conscientious feeling, which will induce the contractor to afford to his poor patients all the assistance which the resources of his art will allow: for it must be recollected that the responsibility of a medical man is very small. No one but himself can judge whether he is giving the proper attentions to his charge, unless the neglect be so gross as to subject him to the jurisdiction of the coroner. If the flour or bacon sent in by the contractor be inferior to the sample, or be deficient in quantity, the circumstance will immediately become known to the master of the workhouse, or to the relieving officer, or to the Board of Guardians; but what attendance, or what medicines, are necessary to preserve the life, or to restore the health, of a sick man, is known to the medical officer only. Now what are the guarantees for the integrity and conscientiousness of a practitioner unknown in the neighbourhood, or of a young man from the schools, who has never been engaged in practice, and of whom it can only be known that he is a member of the College of Surgeons, or that he has obtained his license from the Society of Apothecaries? It may be said, that if, upon trial, he does not appear competent to the situation, he may be dismissed; but during the period of his probation, irreparable injury may be done.

Another erroneous principle appears to me to be that of appointing officers, on the ground "that the recent improvements in medical practice and education are such as in general to render the later diplomas certificates of a degree of competency equivalent to much practice on the part of those who have had an earlier education." This reasoning might be valid, did not the rapid communication of intelligence, by means of periodical journals and the constant publication of standard works, diffuse the knowledge of improvements in science and practice through the provinces, as fast as they are introduced in the schools and centres of instruction. I am sure there is no young man, entering on practice, but will acknowledge, that, however good his education may have been, there is something still wanting, which only experience and the constant habit of attending on the sick will supply.

I cannot understand the justice of the regulation by which it is ordered "that the aggregate charges for medical relief within the new Unions, shall not exceed the aggregate of the former expenditure for medical relief in the separate parishes now included in the Unions." I believe no one will assert, that under the old system the salaries have been excessive, whilst it may safely be said, that, in the great majority of instances, the compensation received has been quite inadequate to the duties performed. Indeed, the Commissioners themselves allege that medical men have been induced, by the smallness of their salaries, to have recourse to unworthy means, as the abuse of suspended orders, in order to increase their incomes. In the MEDICAL GAZETTE of 8th March, 1834, several remarkable instances are related, by Mr. Tomkins, of Yeovil, where the salaries received were grossly inadequate; and, indeed, such cases are to be met with generally in all parts of the country. I think no one will contend, that in these instances the remuneration is even nearly adequate; and yet, because such low rates have been accepted, no larger amount is for the future to be allowed. Is it probable that, in these parishes, proper attentions were paid to those unfortunate individuals in whose cases the evils of poverty and sickness were combined, and who lay entirely at the mercy of the parish doctor? Indeed, in some instances where practitioners have taken contracts at very inadequate rates, they have attempted to justify insufficient attendance and neglect by saying that they could not afford to pay greater attention for the sum which they received; an excuse almost equally discreditable to both parties to the contract, as it is most probable both parties were, in the first instance, aware of the inadequacy of the salary. "Why, then (it may be asked), did the medical man undertake the office, when he knew he should not be sufficiently paid for it?" And this brings me to the statement of the Commissioners, that "We may be sure that the medical practitioner will, in fixing upon his terms, do nothing which he considers will not, on the whole, be advantageous to himself." To this I answer, that, in most cases, the practitioner has only had a choice of evils, and that he has been compelled to adopt, not the line of conduct *most advantageous*, but that *least disadvantageous* to himself. True, there are many men in the profession who would, under these circumstances, fulfil their duty as honourably as if it were a source of emolument to them; but that is not the case with all; and is it wise, where the responsibility is so small, to expose them to the temptation which is offered by the impunity of neglect?

It appears to me that the making the medical districts identical with the districts of the relieving officers, will in many cases be productive of great inconvenience, without possessing any countervailing advantages. Cases of fatal delay have occurred from inability to send a special

messenger for assistance; and very frequently the greatest inconvenience is felt by the poor in sending for the necessary medicines. It will often occur that a medical man is in the almost daily habit of visiting a parish at a distance, whilst, perhaps, he scarcely enters another parish comprised in the same district once a month. In the parish where his visits are frequent on account of his private patients, not only will the attendance on the paupers be much facilitated, but he will be frequently able to forward medicines to the poorer class by the messengers sent by their more opulent neighbours. By this means much injurious delay, as well as serious inconvenience, will be avoided. On the other hand, when a pauper is ill in the parish which the medical officer does not frequent, his visit must be special; and the poor people, who can ill afford the two or three hours spent in the journey, will have to send repeatedly to the surgeon's house. Why, then, should the medical attendance on these parishes be united in the same person, merely because they are under the supervision of the same relieving officer?

In many places self-supporting dispensaries have been established; and their action will certainly be highly useful in supporting the independence of the labourer, and in placing the medical attendance on the poor on a footing more agreeable both to the patient and the surgeon; but these institutions are at present very limited in number, and in many places local obstacles exist to their establishment. But, even were they generally spread throughout the country, there would still exist a necessity for affording some parochial medical relief. Whatever may be the improvidence or the demerits of an individual, in case of sickness or accident he must be attended to; and if he does not obtain assistance from the parish, he must receive it from individual charity, or, as is now often the case, from the benevolence of the medical man. There will also be always a considerable class of persons, who will not be able to afford even the pittance required for a subscription to a self-supporting institution.

As, therefore, the office of parochial surgeon must exist, it is of great importance that the appointment to that office should be made upon right principles. Let, then, integrity, conscientiousness, and humanity, be considered in the appointment, as well as ability: let them even be placed in the first rank of qualifications, for of them every one can judge, whilst the scale of professional ability is in general but ill appreciated by the public. Let a remuneration be secured to the attendant, not liberal, but sufficient to compensate him in some degree for his trouble, and thus to strengthen his inducements to a full performance of his duty. Let the arrangements be made so as to suit as much as possible the convenience of medical men, and of the poor patients. If the arrangements are made on these principles, a great source of dissatisfaction on the part of the labouring population will be removed, a large and influential body of gentlemen will be conciliated, the operation of the new law will be thereby facilitated, and the pockets of the rate-payer will not suffer in the end.

In conclusion, sir, allow me to congratulate the profession on the efforts which have been made to establish a better system. I trust these efforts have not been made in vain. In the recent establishment of one or two Unions in this county, the appointments were not made by tender, but were distributed among the resident practitioners. The districts were not made too large, but were formed so as to suit the convenience of the surgeon and of his patients, and not that of the relieving officer. Let us hope, sir, that these are indications of an improving system, and that the public will discover at last "that a contract for talent and character must be formed on different principles from one for cheese and bacon."

I am, sir,
Your most obedient servant,
A Surrey Practitioner.

May 2, 1836.

CHANGES AT MIDDLESEX HOSPITAL.

Sir Charles Bell has resigned the office of Surgeon to Middlesex Hospital, preliminary to his going to Edinburgh. It is understood that Mr. Tuson will be elected Surgeon, and Mr. Alexander Shaw, Assistant-Surgeon, without opposition.

COLLEGE OF SURGEONS.

LIST OF GENTLEMEN WHO RECEIVED DIPLOMAS IN APRIL.

Thomas Davies, Hookwood, Surrey.
Thomas Jervis, Duke-street, Manchester Square.
Joseph Goldstone, Bath.
Joseph W. Swan, Carnew, County of Wicklow.
Edward King, Bath.
Thomas F. Tierman, London.
Arthur Tibson, London.
Robinson Elsdale, Lincoln.
Richard H. Meade, London.
Emilias S. Mayor, Bristol.
John M. C. Faircloth, St. Albans.
Thomas Charles, North Wales.
Richard Langworthy, London.

Richard M. Isbell, R. N.
John L. White.
Charles Malton, Seymour street, Portman Square.
John Hunter, Dublin.
Thomas Chesman, Sheffield.
R. Norton, Nailsworth, Gloucester.
Orlando Orr, Armagh, Tyrone.
J. B. Barsham, Cambridge.
Geo. Whitmarsh, Dalton, Wiltshire.
Joseph Collin, Saffron Walden.
Thomas Smith, Cheltenham.
W. P. Hoare, Hammersmith.
J. Jackson, Long Clawson, Leicestershire.
A. Cooper, Whetstone, Leicestershire.
Guernsey St. George Bowen, Terrington, Hereford.
George Eveleigh, New Kent Road.
George Back, London.
John Bond, Birmingham.
Richard Bird, West Stockwith, Notts.
Robert M. Lascelles, Stillington, Yorkshire.
John Welch, Hoibeach, Lincolnshire.
G. N. Dangerfield, Churcham, Gloucestershire.
T. G. Clifton, Worcester.
T. S. Ralph, London.
S. R. Jeffreys, Worcester.
Charles D. Steel, Scilly Islands.
James Cowherd, Kendal.
Thomas Truran, Exeter.
T. Dickinson, Thunderbridge, Yorkshire.
W. K. Jackson, Barbotthall, Yorkshire.
P. B. Ayres, Thame, Oxon.
E. Vorley, Carlton, Bedfordshire.
Henry R. Smith, Newark, Notts.
Thomas Stocks, Burgh, Lincolnshire.
J. Thompson, Dalton, near Richmond, Yorkshire.
A. J. Taylor, Morpeth, Northumberland.
W. Nichols, Hackney.
Henry R. Burton, Market Harborough.
J. R. Quick, St. Mawes, Cornwall.
H. Trevan, Port Isaac.
Joseph Parkin, Workington, Cumberland.
George F. Meadows, Ipswich.
William Elliston, Ipswich.
Frederick Heald, Wakefield.
W. Baillie, Jamaica.
William M. Cooke, Trinity Square.
W. S. Davy, Manilla.
Theophilus Clarke, Brighton.
Henry T. Tetlow, Liverpool.
S. Lamb, Stourport.
James Rowan, Belfast.
James Evett, Wellington.
J. Hutchinson, Newcastle upon-Tyne.
F. C. Finch, Greenwich.
Edward G. Baron, Hull.
John H. O'Neill, A.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

April 28, 1836.

Robert Saville, Sunderland.
William Macdonald, London.
Arthur Brisley Rye, Rochester, Kent.
George Flockton, Snettesham, Norfolk.
William Webb Dudley, Leicester.
George Leonard, Dursley, Gloucestershire.
Charles Henry Butler Lane.
William Henry Oliver.
Paul Parrott Vickerman.
George Viner Ellis, Minsterworth, Gloucestershire.
William Turner, Newcastle-on-Tyne.
Frederick Dawson, Bungay.
Robert Stephenson, London.

May 5, 1836.

Richard Douglas Harris.
George Nicholson Smith, Armin Pastures.
Benjamin Ridge, Bridge-street, Lambeth.
William Spink, Leeds.
Thomas Brooks Larkins, Barnstaple.
Richard Marshall, London.
Seaman Garrard, Blyford, Suffolk.
John Page, Kirton, near Boston, Lincolnshire.
Edward Berry Walford.
John Anthony.
Henry Rendell Wotton, Tiverton, Devonshire.
William Welch Collyns, Kenton, Devonshire.
John Bertram Abercrombie.
Thomas Freeman.
Francis John Allnatt, Ramsgate, Kent.
John Hackney, Birmingham.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *May* 3, 1836.

Abscess	2	Heart, diseased	3
Age and Debility	42	Hooping Cough	2
Apoplexy	8	Inflammation	23
Asthma	14	Brain	3
Cancer	2	Lungs and Pleura	1
Childbirth	1	Insanity	3
Consumption	43	Liver, diseased	3
Convulsions	15	Measles	1
Croup	3	Mortification	4
Dentition or Teething	6	Paralysis	2
Dropsy	13	Small-pox	7
Dropsy on the Brain	6	Sore Throat and Quinsey	1
Dropsy on the Chest	1	Spasms	1
Erysipelas	5	Thrush	1
Fever	6	Unknown Causes	7
Fever, Scarlet	2		
Gout	1		
Hæmorrhage	1	Casualties	6

Decrease of Burials, as compared with the preceding week . . 117

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

April, 1836.	THERMOMETER.		BAROMETER.	
Thursday . 21	from 35	to 57	29·84	Stat.
Friday . . 22	41	61	29·73 to	29·84
Saturday . 23	35	52	29·84	29·73
Sunday . . 24	38	50	29·65	29·84
Monday . . 25	33	55	30·02	30·04
Tuesday . . 26	35	52	30·03	29·81
Wednesday 27	30	49	29·71	29·86

Prevailing winds, W. by S., N., and N. by E.

Except the morning of the 21st, afternoons of the 22d and 25th, generally cloudy, with frequent rain.

Rain fallen, ·55 of an inch.

Thursday . 28	from 28	to 53	29·87 to	29·78
Friday . . . 29	27	47	29·79	29·77
Saturday . 30	24	51	29·72	29·68
May.				
Sunday . . 1	26	54	29·71	29·81
Monday . . 2	35	57	29·78	29·86
Tuesday . 3	35	54	29·92	29·79
Wednesday 4	38	54	29·67	29.66

Prevailing winds, N.W., N., and N. by E.

Except the mornings of the 28th ult., and two following days, and afternoon of the 1st instant, generally cloudy, with frequent showers of rain. A little snow on the afternoon of the 29th, and hail on the afternoon of the 30th ult.

Rain fallen, ·125 of an inch.

CHARLES HENRY ADAMS.

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, MAY 14, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XXXIII.

In our last lecture, gentlemen, we were examining the oxides of antimony. I described to you one method of procuring the protoxide, namely, by adding water to the chloride, and washing the precipitate thereby obtained with an alkaline solution. I propose, in the next place, to notice an impure form of the protoxide, commonly termed—

Glass of Antimony.

History and synonymes.—This substance was first described by Basil Valentine in the fifteenth century, in his "*Triumphant Chariot of Antimony*," where he says, "to make glass of antimony is a thing common and well known to many;" so that it does not appear he was the discoverer of it. It is sometimes termed *vitrum antimonii*; at others, *antimonium oxydulatum vitrifactum*.

Preparation.—Ground sulphuret of antimony is calcined by a gentle heat, so that part of the sulphur is burned off and converted into sulphurous acid, while the metal of the decomposed sulphuret attracting oxygen from the air, becomes antimonious acid; this, mixed with some undecomposed sulphuret, constitutes a grey residual mass (called *cinis antimonii*), which is to be heated in an earthen crucible. The antimonious acid gives out part of its oxygen, and becomes the protoxide of antimony: the disengaged oxygen, uniting with some sulphur, forms sulphurous acid, which escapes. The protoxide, with some undecomposed antimonial sulphuret and a portion of the silica of the crucible, fuses into a glass.

Properties.—It is met with in commerce as a glassy mass of a hyacinth red colour, usually transparent, brittle, tasteless, and easily fusible.

Composition.—Soubeiran has analysed it, and found its composition to be—

Protoxide of antimony	91·5
Silica	4·5
Peroxide of iron	3·2
Sulphuret of antimony	1·9
	101·1

Mr. Phillips analysed a specimen which contained *five* per cent. of silica.

Characteristics.—It may be recognised partly by its physical properties, and partly by digesting in hydrochloric acid, by which a solution of the chloride of antimony is obtained; this may be recognised by the tests presently to be mentioned.

Adulteration.—Gray says, that "some years ago, a druggist, being distressed and in the King's Bench prison, made a quantity of glass of lead, coloured it to imitate glass of antimony, and sold it for that article, before the fraud was discovered. Some of this glass still remains in the apothecaries' shops, to whom it was sold." To detect this fraud, boil the suspected glass in dilute nitric acid: we obtain, by this means, a solution which will give a white precipitate with sulphuric acid, if any lead be present.

Physiological effects and uses.—It is a violent emetic, and when swallowed in large doses acts as a powerful irritant poison, causing inflammation of the stomach, mortification, and death, in a few hours. You will find some examples of its fatal effects recorded by Frederic Hoffmann.

In this country it is never employed except in the manufacture of tartar emetic.

Antidotes.—The antidotes and general method of treating a case of poisoning by glass of antimony are the same as for tartar emetic.

Pulvis Antimonialis.

History.—A quack medicine has long been known under the name of *Dr. James's fever powder*; and having gained some repute, attempts have been made to manufacture it. With the cunning and disingenuousness of most quacks, Dr. James took good care to keep his process secret, and the specification lodged in the Court of Chancery, when he obtained a patent for it, is so worded that we cannot prepare his powder by it. Dr. Pearson having shewn that it was a compound of oxide of antimony and phosphate of lime, the antimonial powder of the London Pharmacopœia is intended to be an imitation of it. In the Edinburgh Pharmacopœia this preparation is termed *oxydum antimonii cum phosphate calcis.*

Preparation.—In the London Pharmacopœia we are ordered to prepare antimonial powder by throwing a mixture of 1 part powdered sulphuret of antimony, and 2 parts hartshorn shavings, into a white hot crucible, and to stir until visible vapour ceases to arise. The residuum is to be pulverised, and calcined at a white heat for two hours, and afterwards reduced to a very fine powder.

By the heat, the cartilaginous matter of the hartshorn is decomposed and burned off, leaving behind the earthy matter, (the phosphate of lime). The sulphuret is also decomposed,—the sulphur being volatilized, and the antimony oxidized, being first converted into protoxide, then into antimonious acid.

Properties.—It is a whitish, tasteless, and odourless powder, insoluble in water, and nearly so in acids.

Composition.—Here is the composition of *James's powder*, and the *pulvis antimonialis* of the London Pharmacopœia.

	JAMES'S POWDER.			PULVIS ANTIMONIALIS.	
	Pearson.	*Phillips.*	*Berzelius.*	*Phillips.*	
				1st sample.	2d sample.
Antimonious acid (called by Pearson and Phillips, peroxide)	57	56	66	35	38
Phosphate of lime	43	44	33	65	62
Antimonite of lime (soluble in water)	0	0	1	0	0
	100	100	100	100	100

Mr Brande says he has sometimes found as much as five per cent. of the protoxide of antimony present.

Physiological effects.—A difference of opinion exists as to the action of the pulvis antimonialis; some practitioners asserting that it is inert, or nearly so, while others ascribe to it various medicinal effects. Thus Mr. Hawkins gave one drachm morning and evening without any obvious effect; and the late Dr. Duncan has given a scruple and half a drachm several times a day, without exciting either vomiting or purging. Dr. Elliotson found even one hundred grains inert. It is not unlikely, however, that it may sometimes prove much more active, owing to the occasional presence of a portion of protoxide. Those who contend for its activity, say that it is diaphoretic in small doses, emetic and purgative in large ones. Some practitioners consider James's powder more active and certain in its operation than antimonial powder, and hence *pulvis Jacobi* is an ingredient occasionally met with in prescriptions: Dr. Paris, however, asserts it to be less active than the officinal imitation. If I were to judge from my own observations, I should say both are inactive, or nearly so.

Uses.—It is employed as a diaphoretic in fevers and chronic rheumatism.

Dose.—The dose usually stated is from three or four grains to about ten; but I have already mentioned that considerably larger doses may be given without any obvious effect.

Tartar Emetic.

History and synonymes.—This salt was first publicly noticed in the "*Thesaurus Medico-Chymicus*" of Adrian Mynsicht, published in 1631. Besides its more common appellation of emetic tartar, it has been known by various other names, such as *stibiated tartar, tartarized antimony* (its pre-

sent designation in the Pharmacopœia), *potash-tartrate of antimony*, and *antimonial tartrate of potash*.

Preparation.—It is prepared by boiling the bitartrate of potash and protoxide of antimony in water. The Edinburgh and Dublin Colleges employ the powder of Algaroth to yield protoxide; whereas the London College direct glass of antimony to be used. The boiled liquor is to be filtered, evaporated, and set aside to crystallize.

The theory of the process is obvious: half the tartaric acid of the bitartrate unites with two atoms of protoxide of antimony, to form a ditartrate of antimony, which, with one atom of tartrate of potash, forms tartar emetic.

Properties.—The crystals of this salt are, when fresh prepared, transparent; but they soon become white and opaque by exposure to the air: their primary form is a rhombic octahedron. The opacity of the crystals is owing to their efflorescing slowly: their taste is acid and metallic, and they have the property of reddening litmus. One part of the salt requires $12\frac{6}{10}$ parts of water, at 70°, to dissolve it, or $2\frac{8}{10}$ parts of water at 212°. The aqueous solution undergoes decomposition by keeping, like that of tartaric acid, and the tartrates generally. Alcohol will not dissolve it.

Composition.—This salt is composed of—

2 atoms tartaric acid, 66 × 2 =	132
2 atoms protoxide of antimony, 76 × 2 = ...	152
1 atom potash	48
2 atoms water, 9 × 2 = ...	18
	350

We regard it, therefore, as a double salt, in which the tartrate of potash is the basic, and ditartrate of antimony the acid constituent. On this assumption its name should be the *antimonial tartrate of potash*, and its symbol

$$(\dot{K}\,\overline{T} + \dddot{Sb}\,\overline{T}) + 2\,\dot{H}.$$

Characteristics.—It may be readily recognized as an antimonial salt, by passing sulphuretted hydrogen through its aqueous solution; by which we obtain an orange-red precipitate of the sesqui-sulphuret of antimony. By this agent (sulphuretted hydrogen) we may readily precipitate the whole of the antimony, leaving in solution bi-tartrate of potash, which, by evaporation, may be obtained in crystals. This is the easiest mode of analysing it, and one which was adopted by Dr. T. Thomson. 50 grains of tartar emetic gave him

	Grs.
Sesqui-sulphuret of antimony..	21·59
Bi tartrate of potash	28·69

There are other chemical characters possessed by tartar emetic, but the following are the most important: most vegetable *astringents* (that is, substances containing tannic acid) act on solutions of tartar emetic, and produce precipitates; thus the infusion of nutgalls, as also that of cinchona bark, have this effect, (if the solution of tartar emetic be sufficiently concentrated); the precipitate is the tannate of antimony. Decoction of oak bark is an exception, for it does not give rise to any precipitate, although it is powerfully astringent. The *alkalies* and their *carbonates* likewise occasion precipitates of the protoxide of antimony, but an excess of caustic alkali re-dissolves the precipitate, by combining with it, to form what we may term a *hypantimonite* of the alkali; for, under some circumstances, protoxide of antimony performs the functions of an acid; that is, it unites with basic substances, as in the instance before us. The *strong acids* (as sulphuric, hydrochloric, and nitric acids) occasion white precipitates of the protoxide of antimony, combined with a small portion of the acid employed. *Tartaric acid* occasions a precipitate of the bitartrate of potash. If some crystals of tartar emetic be heated, they decrepitate and carbonize, and before the blow-pipe readily produce metallic antimony. By calcining tartar emetic in close vessels, we obtain a pyrophoric alloy of antimony and potassium.

Physiological effects.—In the first place let us examine the *local* effects of tartar emetic. This salt is a powerful local irritant, but not a caustic; that is, it does not exercise any known chemical influence over the parts with which it is placed in contact. Its irritant properties may be regarded as of a peculiar or specific kind, at least if we are to judge from its well-known effects when applied to the epidermis. To observe these, we may sprinkle the powder over a plaster, or employ the salt in the form of solution or of ointment. By any of these modes of application we obtain an eruption of that kind of pustules, called by Dr. Willan, *phlyzacia*, and resembling those of variola or ecthyma. They are flattened when at their height, are surrounded with an inflammatory border, and have a central dark point. The largest are produced by using the powder sprinkled over a plaster; the smallest are developed by applying the solution. They are usually very painful. I am acquainted with no pharmacological agent producing an eruption precisely similar.

In consequence of the internal use of it, a similar pustular eruption has been

met with in the mouth, œsophagus, and small intestines, and white aphthous spots have been observed on the velum and tonsils.

We have further evidence of the local irritation produced by tartar emetic, in its action on the stomach and intestines. When swallowed in full doses, it gives rise to vomiting and purging, pain in the epigastric region, and after death there has been found redness of the gastro intestinal membrane. However, it would appear from the experiments of Magendie, that part of this effect should be referred to the specific influence which tartar emetic exerts over the stomach, independent of its direct local irritation, since the same symptoms, it is said, have been induced by the application of this substance to wounds.

Taken *internally*, in small doses, it increases the secretion and exhalation from the gastro-enteritic membrane, and of the liver and pancreas. Subsequently, other secreting organs become affected; the kidneys secrete more urine, the mucous membranes generally become moister, and sweating takes place without any very marked previous vascular excitement. These effects are more certainly and speedily produced by tartar emetic than by any other antimonial preparation. In somewhat larger doses, it excites nausea, and disorders the digestive process, and gives rise to an uneasy sensation in the abdominal region; and in still larger doses, violent vomiting is produced. Of all emetics, perhaps this creates more nausea in proportion to the vomitings, and I shall have occasion, presently, to point out to you the advantages and disadvantages of this fact, in practice.

In large doses, tartar emetic is capable of acting as a powerful irritant poison, and of producing death. This, however, is a rare occurrence in the human subject; and modern practice has satisfactorily proved that tartar emetic is not so poisonous a substance as was at one time imagined. Magendie states, that on opening the bodies of animals killed by it, he found the lungs of an orange-red or violet colour, incapable of crepitating, gorged with blood, and here and there hepatized. I confess I doubt the correctness of Magendie's conclusions; and my doubts have received a strong confirmation from the observations of Rayer and Bennett, who, in their experiments on the effects of tartar emetic on animals, never met with any pulmonary lesion. It has been assumed, from Magendie's statement, that tartar emetic has the same specific influence over the human pulmonary organs which he presumed it to have over those of animals; and in support of this opinion, a case noticed by Jules Cloquet has been referred to: it is that of a man who died of apoplexy, but who, within five days of his death, had taken 40 grains of tartar emetic. "In the lungs were observed blackish spots, very irregular, which extended more or less deep into the parenchyma of this organ." Furthermore, it is argued, unless we admit a specific influence of antimony over the lungs, we cannot well explain the beneficial effects of this remedy in peripneumony. In opposition to this view, I would remark, that in cases of poisoning by this substance in the human subject no mention is made of difficulty of breathing, cough, pain, or other symptom which could lead to the suspicion that the lungs were suffering; and in the case of poisoning related by Recamier, we are distinctly told that the thorax was sound. Besides, we should expect that if tartar emetic had a tendency to inflame the lungs, or at least to occasion pulmonary engorgement, that it would not be a very beneficial agent in acute peripneumony, unless we adopt the mode of reasoning used by the homœopathists. It would even seem that this substance must have an influence over the human lungs of an opposite kind to that supposed by Magendie; for in one case of pneumonia mentioned in Lepelletier's work, the use of from six to eight grains daily of it for the space of nine days, reduced the number of respirations from 50 to 18 per minute; while the pulse fell from 120 to 34 beats per minute. In the case of a child, six years old, the number of respirations was reduced in ten days from 84 to 24 per minute, and the pulse from 140 to 96.

I have already alluded to tartar emetic as a poison, and I ought to add, that the circumstance of enormous doses of this substance having of late years been exhibited with perfect safety, shows that this substance is not so poisonous as was at one time stated; but it would seem to be somewhat variable in its action in different individuals, or in the same individual, under different circumstances.

In Dr. Christison's work on poisons are several cases recorded in which serious and dangerous symptoms were produced by 20 or 27 grains of this salt; and in one case 40 grains produced death.

Now, contrast these with the cases given by those who employ tartar emetic largely as a therapeutic agent. Laennec, for example, says he never saw any ill effects from the use of it, although he has given 20 grains daily, and in one case, 40 grains in 24 hours. And you will find cases recorded in Bayle's "*Bibliothèque de Therapeutique*," in which several drachms have been exhi-

bited in 24 hours without any hurtful, but, on the contrary, with beneficial effects. However, it is to be recollected that in these cases the patients were suffering with active inflammation; to which circumstance, it is said, we ought to attribute this capability of bearing such immense quantities of so powerful a medicine. But this subject of *tolerance*, as it is called, of remedies, will be better discussed when speaking of the uses of this salt; and I shall, therefore, only add now, that this tolerance of large doses is not always referable to an inflammatory diathesis, for in Orfila's work on Toxicology, reference is made to a case noticed by M. Lebreton, in which six drachms were taken at once as a poison; oil was immediately administered, and the only ill effects were vomiting, which soon ceased.

Modus operandi. — 1. *Does tartar emetic become absorbed; and if so, are we to regard its remote effects as consequences of this?*—As this salt has not hitherto been detected in the solids or liquids of the body, the question cannot be answered in a positive manner; though I think analogy is much in favour of Magendie's statement, that it gets into the circulation, and in this way produces its constitutional effects. In the 13th vol. of the MEDICAL GAZETTE, p. 496, you will find a case strongly corroborative of this opinion: a young woman, suffering with pleuritis, took tartar emetic, and it was observed that her suckling infant suffered from its effects. The physician (M. Minaret) had the infant put to the breast in his presence; but the milk was no sooner tasted than it proved nauseating; the child showed every symptom of sickness and disgust, and threw up a quantity of coagulum. Another nurse was immediately procured, and the child soon recovered. M. Barré, however, denies that tartar emetic becomes absorbed, and has performed some experiments which appear to favour his notion, though they are not conclusive. You will find his opinions and experiments noticed by Rayer, in the *Dictionnaire de Médecine et de Chirurgie Pratiques*, at the article *Antimonie.*

2. *What are the remote parts affected by tartar emetic?*—In answer to this question, let us examine the different systems on which this medicine has been supposed to act.

(*a.*) *Alimentary canal.*—I have already noticed Magendie's opinion that tartar emetic acts specifically on the alimentary canal. His experiments led him to the conclusion that the stomach, duodenum, and rectum, were the parts particularly affected. Franc (a pupil of Professors Delpech and Lallemand, of Montpellier), on the contrary, thinks that it acts specifically on the duodenum and small intestines, but rarely on the stomach. The truth is, I believe, our facts are insufficient to enable us to decide for either of these opinions. The symptoms most frequently produced, and which indicate an affection of the digestive tube, are vomiting and purging: these are said to take place, not only when the medicine is swallowed, but also when injected into the veins, or into the windpipe; or when applied to the serous coats of the intestines, or to the cellular tissue.

(*b.*) *Respiratory organs.*—I have already referred to Magendie's statement that the lungs are specifically affected, and that death sometimes arises therefrom. Furthermore, I have noticed the diminution of the frequency of respiration in peripneumony.

(*c.*) *Circulatory organs.*—In many cases, tartar emetic reduces the frequency of the pulse: in one case, referred to by Trousseau, it fell from 72 to 44 beats per minute; and in another case, reported in the French Medical Gazette for 1833, it was reduced, in nine days, from 120 to 34 beats. These effects, however, are not constant, for in some cases no obvious diminution in frequency can be perceived. In some cases, the force and regularity of the heart's action are influenced.

(*d.*) *Nervous system.*—The great depression of the muscular power during the stage of nausea, the diminution of the frequency of the pulse, and the epigastric pain sometimes experienced under circumstances that almost preclude the supposition of gastric inflammation, have been referred to the influence of this medicine on the nervous system.

(*e.*) *Absorbent system.*—Some pathologists have referred the beneficial influence of tartar emetic in pneumonia, to the stimulus which this medicine gives to the absorbent system.

(*f.*) *Secreting organs.*—Increased secretion of *saliva* has been produced in dogs, according to Magendie, and in man, according to Drs. Griffiths and Jackson. Many authors have observed increased secretion of *urine*, as I have already observed. Lastly, every one is acquainted with the *diaphoretic* power of antimony.

3. *How does tartar emetic kill when administered in large doses?*—It is unquestionable that in many cases animals have been killed by tartar emetic, without there being left behind the least trace of inflammation; and, indeed, in some instances the death was too speedy to arise from this cause. I suppose, therefore, the death must be referred to an effect on the nervous system.

Uses.—I proceed now to speak of the uses of tartar emetic.

(*a.*) *As a local irritant applied to the skin*, we frequently employ it with advantage. I have already alluded to the three modes of using it for this purpose, namely, by sprinkling the powder over a plaster (a Burgundy pitch, or common strengthening plaster), — or mixed with some fatty body (spermaceti, ointment, or lard), and applied with the aid of friction, — or, lastly, using a strong solution of the salt. In delicate and irritable subjects, I always employ the latter method, as being the mildest and least painful. It is a point of some importance to determine whether the external application of tartar emetic ever produces constitutional or remote effects, such as vomiting and purging. Although I have prescribed it extensively, and have seen it used very largely by others, I never observed the least evidence of any constitutional disorder, and I believe this to be the experience of most practitioners. Rayer, however, says he has certainly seen colic and purgation produced in infants by the use of antimonial ointment; and Colson has observed the same in adults. I ought not to conceal from you the fact of a suspicion that now and then severe constitutional disorder is produced therefrom: nay, an infant of two years of age is said to have died after (and, as it was supposed, from) the use of an ointment containing tartar emetic. But these cases are so exceedingly rare, that I am disposed to believe the supposed ill effects must have arisen from some other cause. The local effects of these applications have at times been very violent,— even sloughing and death have occurred; but these cases are not frequent. I would caution you, however, against using these applications to wounds, leech-bites, or to blistered surfaces.

It is, I conceive, unnecessary to enumerate all the cases in which we employ tartar emetic as a cutaneous irritant, since the principles on which we use it are the same as for vesicatories. It has some advantages over cantharides; thus it is not liable to affect the urino-genital organs, though it has been said to have produced in children an eruption on these parts, but it arises from the child having conveyed by his fingers some of the ointment to the scrotum or perineum. When we wish to keep up long-continued irritation, it is, I think, a better application than a blister, and frequently much less painful. In chronic diseases of the chest, I sometimes order one part to be rubbed with the ointment or solution, and when the eruption appears there, to change the seat of application to some other part, and thus keep up the irritation by a succession of applications to different parts of the chest for several months. The following are some diseases in which this counter-irritant has been beneficially employed:—*In various diseases of the organs of respiration*, more particularly *hooping-cough*, in which disease it has been recommended by Autenrieth as a means of diminishing the frequency of the paroxysms and the violence of the cough; in *chronic catarrh*, *peripneumony*, and *pleuritis*, and even in *phthisis*. In the latter disease, when of a lingering kind, I have seen temporary benefit, such as alleviation of cough and pain, by the occasional use of antimonial frictions. In *laryngitis* also these applications are occasionally of great service. In *various affections of the joints*, especially chronic inflammation of the capsular ligament, or of the synovial membrane, hydrops articuli (particularly when connected with inflammation), and tumors of various kinds about the joints.

(*b.*) *A stimulating wash*, composed of one scruple of tartar emetic to an ounce of water, was proposed by the late Sir William Blizard, in the year 1787, to cleanse foul ulcers, repress fungous growths and venereal warts, and as an application to tinea capitis. A weak solution (as half a grain to the ounce of water) has been employed as a stimulant in chronic ophthalmia, and in spots on the cornea.

(*c.*) *As an emetic*, tartarized antimony has been injected into the veins, as I have already mentioned in a former part of the course. Now and then it has been used in the form of lavement, but the usual method of exhibiting it to excite vomiting, is by the stomach. *Injected into the veins* as an emetic, it has been employed on various occasions: in one case by Köhler; in two by Balk, and one by Gräfe (noticed in Dieffenbach's work, "*Ueber die Tranfusion des Blutes, und die Infusion der Arzeneien*,") and in one by Knoph. The cases being very analogous, I shall particularize one only, that of Köhler. A piece of beef tendon stuck (in the act of swallowing) in the throat of a soldier: the most violent symptoms immediately came on, namely, convulsions, swelling of the face, coldness of the extremities, feeble hoarse voice, cold sweats, and a small but very frequent pulse. Not being able to push the beef into the stomach by means of a probang, Köhler injected six grains of tartar dissolved in water into a vein of the arm. In half an hour vomiting came on, and the meat was expelled with great force, being thrown, it is said, to the distance of eight feet! Knoph used only four grains dissolved in half an ounce of water; Balk about a grain and a half.

Kæmpf has recommended a few grains of tartar emetic to be added to a common

clyster, with the view of exciting vomiting; but Rayer says he has frequently employed from six to twelve grains without producing either nausea or vomiting.

As before mentioned, the *usual* method of administering tartarized antimony as an emetic is by the stomach, in doses of one or two grains, commonly combined with ten or fifteen grains of powdered ipecacuanha. When we wish to *evacuate the contents of the stomach merely*, with the least possible disorder to the system, this salt is inferior to some others,—for example, to the sulphates of zinc and copper,—and hence these latter are preferred in cases of narcotic poisoning, since they occasion less nausea and depression of the system, while they excite very speedy vomiting. On the other hand, when we use vomiting as a means of making an impression on the system, tartar emetic is by far the best remedy for the purpose: hence, we resort to it when we wish to excite vomiting at the commencement of fevers, in croup, in ophthalmia, and other diseases in which this kind of medication has been found useful; for we can hardly suppose that the beneficial effects of emetics, in these cases, depends on the mere evacuation of the contents of the stomach. To promote the vomiting, warm liquids (as water or infusion of chamomile) are to be administered in the intervals.

(*b.*) *As a nauseant, to reduce the power of the muscular system*, tartar emetic is sometimes resorted to. Thus, in dislocations of the larger joints (the hip and shoulder), blood-letting and nauseating doses of tartar emetic are employed, to diminish the resistance of the muscles opposing the return of the bone to its natural situation.

(*c.*) *As a contra-stimulant, antiphlogistic, sedative, or alterative.* — Formerly tartar emetic was used only as an evacuant (emetic, purgative, or diaphoretic), but of late years it has been employed in certain inflammatory diseases, with the view of influencing the morbid action, independent of any vomiting or purging; nay, the occurrence of vomiting is regarded as an accident, and every care taken to avoid it. According to the particular theory entertained of its operation, the influence of the remedy has been designated; and thus some term it *sedative*, others *contra-stimulant*, or *antiphlogistic*, while a third party designate it *alterative*. We are indebted, I believe, to the Italian school for the introduction of this new mode of medication into practice, particularly to Rasori, Tommasini, Borda, and Rubini, though Hufeland has claimed it for his countrymen, Brendel, Schroeder, and Richter, while others give the credit to Dr. Marryatt, of Bristol.

As I have already explained to you, though very briefly, the doctrine of contra-stimulus, it is not necessary I should again discuss this subject, further than to remark that, whether true or false, we must admit that in some diseases patients better support certain remedial measures than in others. Thus in peripneumonia a larger quantity of blood may be abstracted than in cholera; and so far, indeed, the explanation given by the Italian school, of the capability of the system to bear enormous doses of tartar emetic during peripneumonia, accords with this fact. When we read the reports published of the use of tartar emetic in pulmonary and rheumatic complaints during the last few years, (of which Bayle in his *Bibliothèque Therapeutique*, and Lepelletier in his recent work on this substance, have given a good abstract), we are astonished that an increase in the dose of tartar emetic does not give rise to a proportionate increase of the evacuant effects. I have already alluded to the enormous doses which have been employed, some drachms even having been taken in the day, without producing any severe symptoms. Now, according to Rasori, this diminished sensibility of the system to the influence of tartar emetic arises from the peculiar diathesis which accompanies peripneumonia; consequently, if the theory be worth any thing, the susceptibility to the influence of the medicine should increase as the disease declines, a circumstance which Rasori declares is really observed. There is here, I suspect, an error, and that, too, of an important kind, in relation to the theory of contra-stimulus; for, as Laennec observes, "it is certainly true that after the acute period of the disease, the tolerance diminishes, or sometimes entirely ceases; but it is more common to find the patient become habituated to the medicine, insomuch that, during convalescence, and when he has began to use food as in health, he will take daily, without knowing it, 6, 9, 12, or even 18 grains of the tartar emetic."

In those cases in which tartar emetic has been employed with the most beneficial effects, neither vomiting nor purging have occurred. When *tolerance* (for so Rasori terms it) of the remedy is not gained, that is, when either vomiting or purging, or both, are observed, the beneficial influence of the medicine is usually much less obvious, although Laennec remarks he "obtained remarkable cures in cases in which such evacuations had been very copious."

There is a considerable number of interesting subjects connected with the use of tartar emetic in inflammatory diseases,

which want of time compels me to pass over. I proceed, therefore, at once, to notice the use of it in particular diseases. In *peripneumonia* it is one of our most valuable remedies, but will not wholly supersede the necessity of blood-letting, as some of the enthusiastic partizans of this medicine have asserted. After venesection, commence the use of one or two grains of tartar emetic every two or three hours, unless, indeed, there be much gastric irritation, in which case, the remedy had better be omitted altogether. Some combine opium with it, but the practice is not advisable in the first stage of the disease.

In *rheumatism*, tartar emetic has been declared a most efficient remedy by Laennec and others. Judging from my own experience, I should say it was a remedy of no great value; and you will find several late writers (Lepelletier and Rayer, for example) speak doubtfully of it.

Various other inflammatory diseases have been treated by tartar emetic with advantage—for example, *phlebitis*, *acute hydrocephalus*, and *ophthalmia* In *pleurisy* this medicine is not so beneficial as in inflammation of the substance of the lungs: according to Laennec, it assists in subduing the inflammatory action, but has no effect on the effusion. In *bronchitis* (both acute and chronic) I have, on several occasions, found it a very valuable remedy.

(*d.*) *As a sudorific.*—Tartar emetic is one of our most valuable diaphoretics, or sudorifics, being oftentimes available when other agents of this class are inadmissible: for example, in fevers and other diseases where we are desirous of producing diaphoresis, but which are accompanied with preternatural vascular action about the head, the use of those sudorifics (the compound ipecacuanha powder, for example) which contain a narcotic substance is objectionable; whereas tartar emetic may be employed with safety, since it has no tendency to increase the disorder of the nervous system. On the other hand, when much gastric or enteritic irritation is present, the narcotic sudorifics are generally to be preferred to tartarized antimony.

(*e.*) *As an expectorant* in various pulmonary affections, small doses of this salt are frequently employed with advantage.

(*f.*) *Injected into the veins.*—I have already alluded to the injection of tartar emetic into the veins in order to excite vomiting, and on this point I need not say more. But this operation has been resorted to for other purposes. Thus the elder Meckel injected two grains of tartar emetic, in a case of suspended animation from immersion in water. In some affections of the nervous system (for example, epilepsy and tetanus) also it has been tried. Further experience, however, is wanting to determine the efficacy of this kind of medication.

Administration and dose.—We rarely administer this salt *in substance,* though sometimes one or two grains, mixed with ten or fifteen grains of powdered ipecacuanha, are used to excite vomiting.

The best mode of exhibiting it is in the form of *solution.* In the London Pharmacopœia we have a solution in water, to which a little rectified spirit is added, to assist its preservation, and which is most absurdly denominated *vinum antimonii tartarizati,* since it contains no wine. This preparation was substituted for the old *antimonial wine* (made with sherry wine, and still kept in the shops), in consequence of its being found that druggists frequently used an inferior wine in its preparation, which, after a time, caused the precipitation of the oxide of antimony of the salt. Half an ounce of the Pharmacopœial solution contains just one grain of tartarized antimony. The dose of this solution varies according to the object we have in view in prescribing it. As an *antiphlogistic*, or *contra stimulant*, the usual dose would be from half to one liquid ounce, and some give much more than this; but it is better, I think, to use a stronger solution. As an *emetic*, from four to six or eight drachms; as a *nauseant*, I frequently give from one to two drachms, by which purging is also sometimes produced. As a *diaphoretic* one drachm will be found effective, if assisted by warm clothing; as an *expectorant*, about half a drachm.

As an *external* application, we use a solution of tartar emetic. To excite a pustular eruption in adults, I usually employ a saturated aqueous solution; but for children it should be weaker. An *ointment*, to produce the same effect, is prepared by incorporating one drachm of tartar emetic in powder with an ounce of lard.

Antidotes.—In poisoning by tartar emetic the first object is to evacuate the poison from the stomach. Generally we have only to encourage vomiting, by the copious use of warm bland liquids. The antidote is said to be tannic acid, and, therefore, solutions of any vegetable astringents containing this substance are recommeneded, such as decoction of yellow bark, of nutgalls, &c. Although some cases are recorded, apparently testifying in favour of the efficacy of yellow bark as an antidote, I confess I have great doubts of its value; in consequence of some experiments which were made some years since by Dr. Clutterbuck, and of which I was a witness. He found that 1 or 2 grains of tartar emetic rarely

failed to vomit, though given mixed with the powder or dissolved in the decoction of bark; and this occurred in very nearly 100 instances. Venesection is often required to reduce the gastro-enteritis. Opium is also a valuable agent.

Black or Sesquisulphuret of Antimony.

History and synonymes.—Black sulphuret of antimony was known in the most ancient times, being used by the Asiatic and Greek ladies as a pigment for the eyebrows. The practice, indeed, is alluded to more than once in the Old Testament (2 Kings, ch. ix. v. 30; Ezekiel, ch. xxiii. v. 40). This compound is also called *crude antimony*, and *sulphuret* or *sulphide* of *antimony*.

Natural history and preparation.—Sesquisulphuret of antimony is found native under the name of grey ore, in Hungary, in the Hartz, in France, in Cornwall, in Borneo, &c. The method of fusing it out of its gangue, so as to form the crude antimony of the shops, I described in the last lecture.

Properties.—It is sometimes found native in the crystallized state, the primary form of the crystal being the rhombic octahedron. The fused sulphuret of the shops when broken has the metallic brilliancy, a striated crystalline appearance, and a dark lead grey colour. It is insoluble in water, is odourless, tasteless, and fusible.

Composition.—It is composed of—

$1\frac{1}{2}$ atoms of sulphur	24
1 atom antimony	64
	88

It is rarely or never quite pure, usually containing other metallic sulphurets, as of lead, iron, or arsenicum. According to Rose, chemically pure sulphuret of antimony is a reddish brown powder. Guibourt detected $\frac{1}{96}$ part of sulphuret of arsenicum in some crude antimony of commerce.

Characteristics. —It fuses, is dissipated before the blowpipe with the smell of sulphurous acid, and the formation of a white vapour which covers the charcoal support. Digested in muriatic acid it gives out sulphuretted hydrogen gas, and forms chloride of antimony in solution, and which may be recognised by the tests hereafter to be mentioned for this substance.

Physiological effects.—For the most part it is an inert preparation, and may be given in doses of several drachms for weeks without any obvious effects. Introduced into the cellular tissue it had no effect, according to Rayer. It is, however, admitted, that in some cases, when swallowed, it excites nausea and vomiting. To account for these occasional effects, it is supposed, that so long as this sulphuret is unchanged in its chemical properties it is inert; but that it sometimes meets with acid matter in the alimentary canal, by which it is oxydized and rendered active. We must not also overlook the variable quantity of sulphuret of arsenicum which it contains. Guibourt has found, that by boiling crude antimony in distilled water he obtained a solution of white arsenic, which must have been formed from the insoluble sulphuret of arsenicum by the act of ebullition. One ounce of crude antimony yielded him $1\frac{44}{100}$ grains of arsenious acid. You see, then, that a decoction of native sulphuret of antimony is not so inert as some have asserted; nay, it may be more active than the solid sulphuret, owing to the change effected on the arsenical sulphuret.

Uses.—It is principally used for the preparation of other antimonial preparations, and ought not, I think, to be given internally on account of the uncertainty of its effects. But it has been employed, particularly in the form of decoction, in *chronic diseases of the skin*, and doubtless any efficacy obtained therefrom is referrible to the contained arsenic, which every one well knows is beneficial in skin diseases. To this substance, also, we ought probably to refer the effect of crude antimony in rendering the coats of horses smooth. In *chronic rheumatism* and *gout*, and in *scrofula* also, it has been recommended. On account of the sulphur present, it has been employed as an *antidote* in chronic metallic poisoning; for example, in poisoning from the mercurial preparations.

Dose.—The usual dose is from half a drachm to one or two drachms.

REPORT ON THE MEDICAL INSTITUTIONS OF IRELAND.

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(*Communicated by the Author.*)

PART I.—ON THE DISPENSARIES.

The dispensaries established in the counties of Kerry and Roscommon, and in the East Riding of the county of Cork, to which my inquiry was directed, would, if well situate, well supported, and well conducted, furnish an invaluable means of relief to the sick poor. There are, however, several objectionable points in the present system, which I proceed to notice

in the order and arrangement adopted in taking the medical evidence.

The first, and one of the most important points for consideration, is the *allocation* of dispensaries. Although, generally speaking, they occupy suitable positions, they are in some parts unequally distributed over the country, being either unnecessarily close together* and frequent, or scarce, and even entirely wanting, where the public convenience most requires them. Thus the district is circumscribed within a narrow compass, or vague and undefined, and extending a long way. For it is the custom to swell the subscription-list by receiving contributions from every quarter, without reference to the extent of duty imposed on the medical attendant, who is sometimes called upon to visit as far as 8, 10, or 12 miles from the dispensary†. The reason of this partially existing state of medical relief, (for which, it may be observed, there is a tax levied upon the country at large), as well as of seeking contributions so far off, is to be attributed to the present plan of allowing any number of subscribers to originate a dispensary where they please, and making the grand jury presentment to depend upon the amount of private subscriptions.

The law, as it now stands, leaves the selection of the spot to the subscribers, and hence it may be applied rather for their own accommodation than the public benefit. Some amendment of it is therefore required, by restricting the establishment of a Dispensary to certain localities and a certain population; and at the same time to make its establishment, under such circumstances, compulsory. It was the general opinion of the witnesses who were examined on the subject, that supposing it were in contemplation to map out the country into Dispensary-districts, a tract of *four* miles, or thereabouts, extending in every direction from the residence of the medical officer, might very well be assigned to his charge, having reference also to the population—diminishing the distance where the people are collected into towns and villages, and increasing it on the contrary in such parts as are thinly inhabited.

The *building* was in general a decent-looking commodious house, consisting of two apartments, one a surgery, the other a waiting-place for the patients; or a room was set apart in the rear of the house of the medical officer, with a separate approach. Occasionally it was hired of a subscriber at a high rent. It was seldom the property of the county, but the witnesses admitted this would be a better plan, for in that case, if they had fixed upon an eligible place, they might be sure of keeping it. But from the want of some such regulation, exceptions to this kind of building were not wanting. Thus at Oysterhaven, it was an out-house; at Ballyleague, a bed-room; at Innishannon, a small detached stable, in a lane off the main street; at Tulsk, a dismal filthy barn, in a state of dilapidation; and in several instances, the Dispensary was held in the shop of the medical attendant, or in a small room which also served as a residence for his assistant, or servant, or in a mere cabin*, consisting of only one apartment, with a partition run across it, without reference to situation, condition, or convenience of any kind.

Among the *medical superintendents* to the Dispensaries which I visited, there were two individuals who held no kind of license to practice, whether as physicians, surgeons, or apothecaries. Several were only qualified as apothecaries, and were without a midwifery certificate. But by far the greater number of them had received a respectable professional education, and were members of the Irish or English Colleges of Surgeons, or Graduates in physic of the Scotch Universities.

No specific qualification being required by law to entitle a person to hold a Dispensary-appointment, the determination of this point rests with the subscribers, who are in general anxious, as well for the sake of the charity as on their own account, to procure competent men, as the public appointment often leads to their becoming the medical attendants in the families of the subscribers. Thus at Dunmamony, a stranger had been preferred to other candidates personally known to the

* I met with an instance of this in the town of Maynooth, having a population under 2000. Some subscribers objecting to have a physician who did not reside in the place, recommended a practising apothecary of the town as medical superintendent to the Dispensary. The recommendation was disapproved of by others, and the parties not choosing to coalesce, separate presentments from the grand jury were applied for, and procured, and thus two Dispensaries were established and carried on together for some time, where one would have been sufficient. Occasional reference will be made in this report to other Dispensaries in the county of Kildare, as Clane, Newbridge, &c.

† It may be stated '*in limine*,' that whenever particular instances are not adduced in the course of these remarks, abundant proof is to be found in the medical evidence, to which the reader is referred.

* French Park, Clanmaurice, or Causeway, Kinnatalom, Glanworth, Cloyne, &c. were among the worst of this description; and at Clane, in the county of Kildare, the Dispensary was held in a wretched hovel, crumbling for want of repair, and rented at 10*l*. per annum of the medical officer. It was visited on one of the days of attendance, but the shutters were closed, and no patients waiting.

subscribers, because his testimonials were most approved of. Nevertheless this plan of private patronage has its disadvantages, and sometimes, especially when there are not many resident local gentry, persons not duly qualified for the office obtain the appointment. Hence it would be better if the law imposed some restrictions, which might ensure the selection of competent medical officers in every instance.

Some advance to such a security for a good appointment has been obtained by the amendment of the law as to *elections*. Now, in the event of a vacancy, public notice must be duly given, of the ensuing election. No person can vote at once on paying a guinea subscription: he must be a previous subscriber, at least of a year's standing, or he must become a subscriber for life. Before the law was thus amended, it was a common thing for a man who had a certain sum of money to expend, to make votes enough to ensure his election, by subscribing in the name of friends. Advantage was also taken of the occurrence of a vacancy to get up an opposition, and so recruit the funds of the charity at the expense of the contending parties. The existing law has put an end to these irregularities.

Non residence, which had become a common custom, has of late been disallowed in several places in the county of Cork, as at Black Rock, Watergrass Hill, &c., but I find it still tolerated at Glenville, Douglas, Glanworth, Donoughmore or Majounay, &c. In the latter instances the medical officers resided at a distance of three miles from the Dispensaries; in the first, at Fermoy, at a distance of six. In Kerry there was not a single instance of non-residence, while in Roscommon it was very common. It was so at Brideswell, Lecarrow, Tarmonbarry, or Ruskey, Tulsk, French Park, Lough Glynn and Croghan, and at Keadue also, till within a very recent period. These places furnish one half the number of Dispensaries in the county*.

The practice of compelling the medical officer to reside on the spot should be every where adopted, if it be the intention of subscribers to make the Dispensary of real service; for how can medical aid be said to be fairly placed within the reach of the sick poor, and least of all when immediate help is necessary, if the medical officer attends at the institution one day only in the week, as was the case at Lecarrow and Croghan, or even oftener, and is away the rest of the time at a distance of several miles. Ruskey is full eight miles from Strokestown, where the medical officer lives; Lecarrow nearly as far from Roscommon; and in the other cases of non-residence just cited, the distance is not less than from four to six miles. It must, nevertheless, be admitted, that, placed as these Dispensaries are, in remote and impoverished districts, it is scarcely to be expected that medical men of any pretensions will be found willing to come and live on the spot, so long as the highest salary attached to such an appointment is limited by the Grand Jury to 60*l*., which is the case throughout the county of Roscommon.

Where there is a non-resident medical officer, the onus of his *duty* is generally thrown on a neighbour, to whose Dispensary the patients resort in the absence of their proper physician; or they are left to shift for themselves till the next day of the Dispensary being open, which may not be before nearly a week's interval. In other places, on the contrary (so widely do the regulations differ), instead of appointing only one day in the week, the subscribers are not satisfied with less than daily attendance at the Dispensary, and this, too, where the medical officer resides close at hand, and is ready to give assistance in all cases of sudden illness or accident.

If stated days and hours were assigned, either two days in the week for four hours long, or three days for three hours, sufficient time would be allowed for the due discharge of dispensary duty, while opportunity would be afforded for visiting the poor at their own dwellings. At the same time it would be necessary to restrict the medical officer to the service of that institution which had been given him in charge. In some few instances there were two, and in one instance no less than four, such appointments held at the same time by one individual*.

In towns it was not unusual to find more than one medical officer, as well as an apothecary, attached to the Dispensary; but in the country parts the business of the apothecary devolved in general upon the medical officer, who was obliged to compound and dispense the medicines himself, or he delegated this duty to an apprentice, or journeyman, or even to a servant.

But the employment of uneducated and unprofessional persons was not confined to the manipulation of drugs; they were sometimes allowed to bleed and perform

* The medical officer of the Newbridge Dispensary resided at Naas, and of Donodea, at Clane; the first at a distance of six, the second, of three or four miles, from the Dispensary.

* The same medical officer was appointed to Glenville and Fermoy, to Magouney and Donoughmore, to Kildorrery and Glanworth, to Clane and Donodea, and to Selbridge, Lucan, Leixlip, and Maynooth Dispensaries.

the minor operations of surgery, and even to tap in cases of dropsy. The phlebotomist at the Cork Dispensary, a person of this description, had a salary of 20*l.*; and the servant at the French Park Dispensary, who was naturally enough very proud of his surgical skill, was anxious I should go with him and see a dropsical patient whom he had under his care, and had tapped repeatedly.

The determination of the *amount of salary* rests with the subscribers; but in no instance did I find they had carried it beyond what is reasonable; indeed, they seldom had the means of allowing adequate pay. Occasionally it amounted to 100*l.*, but it never exceeded that sum. It was for the most part considerably less, even falling below 50*l.* In the county of Roscommon it was limited by the Grand Jury to 60*l.*; but the witnesses who attended the examination at Castlerea, acknowledged that it was hard upon the medical officer to fix his stipend at so low a rate.

The uncertain amount of payment, as well as its inadequacy, was made the subject of grave and constant complaint. Instead of having a fixed salary upon which they can calculate, the medical officers seldom know from year to year what sum they are to receive for their services: it depends upon the amount of subscriptions and presentments*, alike fluctuating and precarious. Of late the act of parliament having been construed not to make it imperative upon Grand Juries to grant a sum equal to the private contributions, they have reduced the presentments in some counties, where, owing to the multiplication of Dispensaries, and the weight of the public burdens, it was thought right to take advantage of this recent interpretation of the statute. At the same time the subscribers are apt to fall off, because the custom of granting pound for pound has been discontinued; or they require to be so much importuned before they pay, that it becomes irksome and disagreeable to apply to them; and the medical officer, rather than do it, is in the habit of supplying the deficiencies from his own purse, taking upon himself the risk of being repaid his advances, so that the treasurer may receive the full amount specified in the declaration, and thus be enabled to obtain a proportionably greater grant from the county. But in spite of this precaution on the part of the medical officer (the propriety of which it is not the proper place here to consider), the funds had declined, and to such a degree in some cases, that the means of providing a salary were altogether wanting, and they barely sufficed for the purchase of medicines. Although it was to be expected, under such discouraging circumstances, that the functionaries would relax in their efforts, and neglect the trust they had undertaken, it was gratifying to see that the loss of pay, or non-payment, did not indispose them, for the most part, from attending to the interests of the charities: the medical officers gave their services gratuitously but unremittingly in several instances. Nevertheless, it is desirable that a fair and certain compensation should be given, so as to impress them with a consciousness of their responsibility; and in many places it is absolutely indispensable to secure the services of a salaried officer, where there is not a sufficient number of individuals in the neighbourhood capable of supporting a medical man independently of the emolument of office. As a general rule, the salary should be in an inverse ratio to the size and wealth of the place. It should decrease according as the opportunity is greater of acquiring private practice, and increase, on the contrary, as the inhabitants belong more to the labouring and lower classes. But it is to be apprehended that as long as the medical officer has to depend for his pay upon the chance amount of contributions, and to court subscribers, so long will he be disposed to consult the convenience of the rich before the necessities of the poor—that as long as he is unworthily paid, so long will his duty be inefficiently performed, and the Charity more or less inoperative to all good and legitimate purposes

Upon the whole the Dispensaries were well supplied with *medicines* of a good quality, obtained from druggists of established character, and judiciously selected. As much cannot be said as to the supply of surgical instruments, splints, bandages, &c. What few instruments there were belonging to the institutions were often unserviceable through rust; and the other articles were not uniformly provided, as they should have been in case of accident.

I had occasion to remark that those Dispensaries were furnished with but a moderate and scanty supply of drugs, in which it was the custom, after defraying their cost, to hand over the surplus funds to the medical officer in the shape of salary. If, however, the salary was fixed at a low amount, then medicines would be provided in a sufficient, nay sometimes in a superfluous, quantity. They became, in such instances, a heavy item in the expenditure for the year; but since vouchers for the payment of the druggists' bills were not always producible, having been either wilfully destroyed, or lost through care-

* See under these heads further on.

lessness, it could not be ascertained whether the entire sum had been applied to the purchase of medicines.

Occasionally the medical officer was allowed to charge a round sum for medicines;—a bad plan, as it gave him the opportunity (if disposed to make use of it) of substituting inferior articles, and so gaining the difference in cost between good and bad. Sometimes no distinction was made between the stock of private medicines for sale, and those belonging to the institution: or the latter sort were stowed away in the corner of a shop, kept by the medical officer, while those he had upon his own account were well appointed and arranged, and ostentatiously displayed, which led to the impression among the poor applicants, that they had better pay a something for a good article than put up with a bad one. But not only was the trick resorted to of giving the public clearly to understand from appearances, that if they wanted good medicines they must purchase them at the shop, but the fraud was committed of selling the medicines belonging to the Dispensary without putting the money thus obtained to the credit of the charity. I mention this fraud as having been detected, although but in a very few instances; I by no means wish to imply that it was common, or to cast any imputation of the kind upon the medical attendants in general; and I wish as much to be understood when I state, there was at times strong reason to suspect that the pharmacy had been dressed up for the occasion of the visit of the Assistant Commissioners, and drugs procured for exhibition, but which did not belong to the Dispensary.

Sometimes little else was to be seen in the shape of medicine than a large cask of Glauber salts, or numerous bottles of castor oil; the latter being much in vogue with the people: or there was a very scanty store in hand—in fact no more than could be contained in a small cupboard or press; and the nature of the establishment was only made apparent by a board, stating the days of attendance, posted up over the door or window. The more delicate medicinal preparations, recently brought into use, were met with in a few places, but not generally. Indeed, on account of their concentrated form and drastic quality, they are not well adapted to Dispensary practice: persons taking them require to be constantly seen by the medical attendant.

There is still another point connected with the pharmacy—I mean the deterioration of drugs, from want of proper care and keeping. At Freemont, Elphin, Maynooth, &c. the medicines were spoiling from damp; and, in some instances, not only were no pains taken to preserve them, but the room in which they were kept was in a dirty and slovenly state, or the building in a ruinous condition. This was the case at Tulsk Dispensary, where, owing to the wet dropping from the rotten thatch, or driving in through gaping chinks in the mudwalls, and the wretched condition of the interior, the few ordinary drugs which were found jumbled together in the drawers of a musty press, proved, upon inspection, damp and damaged. At Oyster-haven, the filthy outhouse, which was used for the Dispensary, contained scarcely a pound's worth of medicine. And at Ballyleague, with the exception of some half dozen shelves put in the corner of the room opposite to that in which the bed lay, there was no arrangement for the Pharmacy—no fittings-up of any kind, neither drawers, cases, nor counter—no apparatus for compounding and dispensing medicines—nor any instruments, weights, or measures. Of the pots and bottles with labels on them, which stood upright on the shelves, many were found, on inspecting them, to contain merely the mouldy remnants of drugs, whose virtues were gone long since, many more to be empty, and others again, where it was possible to recognise their contents, had been misrepresented by the inscriptions set upon them. Three or four packets alone, containing medicines of the common kind, were of a good description: but the greater part of such stock as the establishment possessed, lay strewn upon the ground—bottles, gallipots, jars, and other utensils, mixed with sundry parcels of drugs, lumber, and rubbish. Nevertheless the annual charge for medicines, upon an average of the last three years, amounted to little short of *50l.*, a sum sufficient for providing an excellent supply of medicines, but which, it would seem, had been applied in part, if not chiefly, to purchasing sundry jars of oil, vinegar, and molasses.

Much useful information, in regard to the statistics and the sanitary state of the districts, might be furnished by a register, to be kept at each medical station, accurately and fully drawn up, recording the number of cases admitted, with the names and residences of the patients, the nature of the diseases, the treatment, and the result. A document of this kind was insisted upon, but with a different intention, by the Grand Jury of the County of Cork, for each Dispensary. It was thought it would prove a check upon the medical officer, and afford some clue to the amount of relief compared with the cost of medicine. But it was fairly alleged by the medical men, that it was next to impossible, in the press of persons at times

attending at the Dispensaries, to enter the required particulars; and they were for the most part content with putting down a certain number of cases, when their duty was done, according to the best of their recollection. Moreover, as tickets were not constantly demanded, nor, when presented, regularly filed and kept, the vouchers were wanting to count and compare with the entries, or there were not the proper means of verification or of testing the truth of what appeared on the face of the books. Hence but little dependence could be placed upon the register, which was, to my mind, neither a check upon the occurrence of an abuse, nor any criterion of the utility of the institution.

One of the chief abuses of the present system is the diversion of the funds of the charity from its proper objects. When sickness and poverty combine in an individual, the joint affliction fulfils the condition requisite to entitle him to claim relief; but it is not the sick poor alone who obtain aid from the Dispensaries. It is a very common notion with servants that their masters subscribe on their account; and, as far as the lower class of servants is concerned, perhaps little objection can be made; but the case is different with upper servants. At Castletown Roche, I was told of housekeepers and ladies' maids being driven up to the Dispensary, and substantial yeomen riding up, booted and spurred, and demanding relief in the name of their landlords, whose displeasure and the withdrawal of whose subscriptions they threaten if their applications are not attended to. "I was sent for," said the assistant medical officer of the Kilworth Dispensary, "to attend the wife of a nobleman's shepherd, who has a salary of 40*l*. or 50*l*. per annum. She was in labour of her first child. I remained in attendance the greater part of two days, and made, first and last, a dozen visits. No pay was offered me, on the ground that if they had asked for a Dispensary ticket of the secretary, or the agent, they would have obtained it. "This," he added, "occurred five months ago, and I was called only last week into the country, a distance of nine miles, to visit a Dispensary patient who rented a snug farm (about 40 acres), and was well able to pay." He also stated a third instance, in which a respectable farmer, seven miles off, was visited twice by himself and thrice by his colleague, upon an order of his landlord on the Dispensary. Similar instances of gratuitous relief improperly procured will be found, upon reference to the medical evidence, to be by no means uncommon.

It is absolutely essential to the right working of Dispensaries, that this abuse should be done away with. It is one of the very worst features of the present system. It has been carried to such an extent that subscribers have been supplied, through fear of disobliging them, with medicines for their dogs, horses, and even private families, at the expense of the charity. They have even gone further, and procured medical advice for themselves, as well as medicines, gratis *. True it is that the poor have access to the Dispensaries, but it is equally true that others, as in the cases just cited, assert their claim to assistance, who are any thing but proper objects for it: and thus these charities must, in some degree, be considered as established, not solely with a view to affording medicine and medical aid to the sick poor, but also for securing professional attendance for the domestic servants, tenants, and dependents of all kinds, of the gentlemen who contribute to their support. The subscribers cannot lay claim, therefore, to credit in all cases, on the score of being influenced by charitable motives alone: they must be regarded in the light of mutual insurers, or contributors to their own convenience and advantage. But besides being a gross abuse in itself, this kind of imposition upon the charity presses hardly and most unfairly upon the independent and industrious practitioner of medicine. If he resist it on the one hand, he runs the risk of giving offence to the subscribers, whose good opinion he is of course anxious to conciliate; while, if he yield on the other, it makes him the *drudge* of the place, debars him from acquiring private practice—and for what? for a yearly stipend of a few pounds—and entails upon him, at the same time, a most laborious, troublesome, and thankless office.

In general it was necessary to obtain an order for the aid of the institution. This is required with the view of inducing persons to become subscribers, by making it their privilege alone to recommend to the charity; and sometimes, as a farther inducement to raise the subscription, the number of orders allowed is made proportionate to the sum subscribed: but such a plan is open to objection. It sometimes happens that medical help is quickly wanted, and there is no subscriber at hand; or if the number of tickets is limited, he may have already distributed as many as he is entitled to; or there may be an un-

* I was told of a medical man being sent for to the house of a subscriber to see a servant, whom he found in bed, but ailing nothing. He was requested, however, on leaving the house, "just to look at one of the children, who was slightly indisposed." The child was seriously ill, and he gave his advice, but his Dispensary salary was considered to be the proper fund for remuneration.

willingness on his part to assist the applicant, or, what is more probable, he may not like the trouble of it. In places where there was only one subscriber resident on the spot, he has been known to be called upon to issue more than fifty tickets in a morning: and as such a system opens the door to annoyance, so also a market is sometimes made of the patronage incidental to the subscription. If the subscriber is a shopkeeper, he may turn it to account by stipulating that all those to whom he gives tickets should deal with him, and in other cases a like advantage may be secured. Hence it would be well to consider whether the formality of obtaining an order, which may thus be made a means of abuse, may not be entirely abolished.

In that case, the Dispensary would be open to all the sick poor belonging to the district: they would have free access to it, and be able to get relief upon personal application, leaving a discretionary power with the medical officer to withhold it from such as he conceived to be improper objects for the charity. Such a plan, however, should be subject to the control of the managing committee, with whom the adjudication of all matters in dispute should rest. If the case be a doubtful one, assistance might at first be given, and information as to the condition of the person obtained for the purpose of submitting it to the Committee. It would not be long before the medical officer would learn to discriminate between the deserving poor and those who are not in necessitous circumstances. Still it would be necessary, for the protection of the poor patients, that the medical officer should at all times be responsible to the Committee for the proper discharge of his duties.

Domiciliary attendance is an essential point to be provided for in a well-regulated Dispensary: but it would be to impose much too onerous a task upon the medical officer if he is to be at the beck of every applicant for relief, who may not like to take the trouble of waiting upon him. The plan of visiting *out-patients* can only be recommended under certain limitations. A visiting ticket might be required, the issue of which should remain with the subscribers, or the Committee, and be confined to such patients as they believe to be unable to attend the Dispensary.

The possession of this privilege, in addition to a vote in the election of officers, might be a stimulus to some persons to subscribe; and it would not entail any unreasonable degree of trouble upon the medical attendant if, at the same time, a small ward were annexed to his Dispensary, to which he could transport the worst cases,—an accommodation * which I would strongly recommend where there is not an hospital near enough to be of service, taking care that, when a visiting order is presented, the case be properly attended to.

With reference to *vaccination*, I found that although its protecting influence upon the constitution was a principle acknowledged by the medical men whom I saw, and who were almost unanimous in declaring that it seldom failed to mitigate and modify an attack of small-pox, if it did not wholly succeed in preventing it, the practice was but little in accordance with such views. Vaccination was not regularly performed, owing, it was said, to the strong prejudices of the people against it, and the difficulty which was found of keeping up a supply of vaccine lymph, and in the neglect of the mothers to bring the children back for medical inspection at the proper time, after they had allowed them to be vaccinated. But the means taken to counteract the prevailing notion against vaccination were not likely to have any effect; in general it was discontinued, or it was left to the apothecary to vaccinate, and he made a charge for doing it.

The trade driven by professed inoculators was another great drawback to the introduction of the cow-pock. These men perambulate the country, carrying with them a supply of the infectious matter of small-pox, and ready to inoculate even for the price of a meal. The magistrates sometimes interfered to put a stop to a practice so replete with danger to the community; but for the most part it passed unnoticed and uncontrolled: it had even the sanction of medical authority in one or two instances which fell under my notice. At Aghada Dispensary the medical officer was accustomed himself to inoculate with small-pox, which he declared he had done successfully,—meaning, that he had had the good fortune not to lose a case. But at Doneraille several children died the preceding year, the subjects of small-pox artificially produced, not by itinerant inoculators alone, but also by an apothecary of the town. And the servant attached to the French Park Dispensary (whose handyworks I have had occasion to notice under a former head), told me he had under his care, at the time of my visit, between forty and fifty children, in town and country, whom he had inoculated with the small-pox; so that he kept the disease for ever rife in the neighbourhood. No objection to his doing it was taken by the medical officer or sub-

* See latter part of Report upon the Dispensaries.

scribers, and no attempt made to introduce the cow-pock. I went with my informant to see two little patients whom he had inoculated the week before. One had taken the disease mildly, the other was alarmingly ill. My guide was at a loss to know what to make of the case. "He had never," he remarked, "known one take on so before—he was always lucky." It is bad enough when low and ignorant individuals are allowed to take advantage of the prejudices of the people and turn them to their own account; but how much worse when it is done by paid and accredited agents connected with public charities. It were better that these institutions should cease to exist, than that existing, they should work evil instead of good to the community.

In several instances which came under my notice in inquiring into the qualifications possessed by those who held dispensary appointments, I found that they had not attended to the study of *midwifery*; and yet, notwithstanding their neglect of this important branch of medical education, and their incapacity, they were sometimes obliged, from the force of circumstances, to undertake the practice of it, as when settled in remote rural districts, and being, perhaps, the only medical men in the way. Sometimes, but rarely, it was represented to be a line of practice which they did not choose to follow, when of course the usefulness of the charity was much abridged by its not possessing the means of rendering any assistance to puerperal women. It was the custom, however, and in general incumbent upon the medical officers, to attend in all cases of difficult and dangerous labour; but it was a common complaint, that they were not applied to till it was frequently too late to be of service. This they ascribed to the ignorance of the midwives, who are not sensible of the alarming condition of their patients, or are too jealous of the medical practitioner to call him in to their cases.

There were only a few certified midwives in the districts which I visited: they had been sent to the Lying-in Hospital at Dublin at the expense of the county; but the greater part had copied errors of practice from one another, or commencing as nurses, had boldly entered upon the province of midwifery. Repeated instances were adduced, in the course of my inquiry, of severe injuries both to mother and child, and permanent disabilities, which had been occasioned by their ignorance or want of skill—by their meddlesome and mischievous practices.

Impressed myself with the necessity of providing against an evil so generally deplored, and yet so prevalent, I would suggest, that all persons should be prohibited from engaging in the practice of midwifery who do not hold a certificate signed by a lecturer on midwifery in a medical school, or a medical superintendent in a lying-in charity, and countersigned by a magistrate or some other public functionary *.

In Ireland, where the means of the poorer classes are so miserably low that they cannot at times procure the common necessaries of life, it is highly desirable that *nourishment*, as well as medicine, should be supplied during sickness. The expense and abuse, which seem almost inseparable from such a plan, are the chief objections; but they are more than counterbalanced by the certain amount of good which would flow from the introduction of this great auxiliary means of affording relief with the administration of dispensaries.

Sickness may be simulated, and an attempt made to get alleviation for the cravings of nature, by pleading its infirmities; but besides that, when proper vigilance is used, the imposition is easily detected, it would be a sufficient check against the abuse to withhold, in a suspected case, other aid than that of medicine.

Neither would the relief which it is proposed to give, in the way of nourishment, be attended with a heavy expense. Any undue excess in the distribution of it might be controlled by the committee; and it should be confined to certain particulars of diet, as diluent and demulcent drinks, broths, wine, &c. which form part of the medical treatment, and are essential to its success. Medicine, without adjuvants of this kind, is of doubtful advantage; and although prodigally administered under the present Dispensary system, and sought for with avidity by the lower classes, among whom a taste for physic has been created by the ready opportunity of getting it, drugs constitute of themselves but a slender means of real relief. Their remedial effects are counteracted by the unfavourable circumstances of the patient, especially in regard to diet. Potatoes, the staple food of the Irish people, are highly injurious in dyspeptic complaints, of which they are indeed a chief exciting cause †, and in all cases attended with vomiting; and yet the poor, whether ill or well, are obliged to have recourse to

* See, in connexion with this subject, a letter lately addressed to the Editor of the MEDICAL GAZETTE, by Dr. F. Borrett, of Norwich (last No., p. 225).

† See latter part of Report upon the nature and cause of disease.

them. Many diseases, which would be made light of in the house of the rich man, prove, on this account, fatal among the poor; while the convalescence is prolonged and the proneness to relapse increased tenfold by the want of suitable and nutritious sustenance.

If this description of relief came within the scope of a Dispensary—if part of the money which is now sometimes extravagantly applied to the purchase of medicine, were laid out in supplying oatmeal, pearl barley, rice, &c.—or if there was any charitable society in the place for the distribution of such nutritious articles, with power to the medical officer to give an order—his means of doing good in the exercise of his vocation would be greatly increased, and the chance of recovery improved in numerous instances. A charity of this kind was established at Bantry by a benevolent individual, who was struck with the sight of a sick poor man lying near the chapel, unable to purchase even a little drink. Its first object is to relieve those who are labouring under sickness, and, if the funds allow it, the aged and infirm come in next for a share.

[To be continued.]

CASE OF

REMARKABLE DISLOCATION OF THE HIP AND KNEE JOINTS.

AMPUTATION—RECOVERY.

To the Editor of the Medical Gazette.

SIR,

SHOULD you consider the following case of sufficient interest, you will much oblige me by publishing it in an early number of your journal.

I am, sir,
Your obedient servant,
THOMAS BRITTAIN,
House Surgeon.

Chester Infirmary,
April 28, 1836.

Henry Duke, æt. 22, admitted into this hospital, February 4, 1836, under the care of Mr. Bagnall. He is a strong and muscular man, but of scrofulous habit, having the old scars of scrofulous sores on his neck and different parts of his body; has also been given to intemperance.

Has dislocation of the left hip backwards into the ischiatic notch, and also dislocation of the right knee. The tibia, upwards, on the anterior part of the femur, and the condyles of the femur, plainly felt among the muscles of the calf of the leg. The limb shortened four or five inches. The leg and foot swollen and cold; all circulation below the knee stopped. There are no marks of external contusion on any part of the body.

States, that whilst he was standing over a large boiler, the lid, which is nearly a ton weight, was suddenly hoisted to the top of the building; it fell, and knocked him down; but cannot say positively upon what part of the body it struck him; thinks it was upon the head.

The knee was easily reduced by gradual extension, by means of the pulleys, in a very short time, and was retained in its extended state by means of splints placed under the joint and secured by roller. The hip was also reduced easily in a few minutes by the pulleys, in the manner directed by Sir A. Cooper. Owing to having great pain, he took opii, g. ij. immediately. Ordered cold evaporating lotion to the knee.

Vespere.—Is in great pain.

Sumat Morph. Mur. gr. ss. stat.

Feb. 5th.—There is great swelling about the knee, and pain extending down the leg towards the ankle; no pain in the hip.

Appl. Hirudines, xiv. gr. Cont. Lotio. Sumat. Pil. Calomel, i.; Coloc. g. x. st. Haust. Sennæ c. postea.

6th.—The bowels have been moved once. Tongue loaded. Still pain down the leg, and about the ankle.

Repr. Hirudines et Haust.

13th.—The leeches have been repeated three times since last date, and the cold wash continued. The knee is now nearly its natural size, and little or no pain. The hip is perfectly free from pain, and has been since the day of the accident. There is great heat, redness, and swelling, of great toe, and inner side of the right foot (the side on which the knee was dislocated).

Hirudines, vi. parti. Lot. frigid postea.

March 1st.—Have been absent from home since last date, and no notes have been kept of the case. He has taken diaphoretic and anodyne medicines, with calomel at bed-time. There are now two or three superficial sloughs

down the outer side of the right leg, between the knee and ankle; lividity of the great toe, which is quite cold, but to his own feelings it, as well as the entire foot, feels very hot and painful. The foot is hot and red. There is a large abscess under the ham.

Catapl. commune. Lot. frigid pedi.

3d.—The abscess in the ham was opened this morning, and eight or ten ounces of thin reddish-coloured pus evacuated. The sloughs on the leg separating; the second toe has now become livid; the foot still continues hot and painful. He is slightly jaundiced; bowels open; urine high coloured.

Ordered a pint of Port Wine daily.
Mist. Quininæ, ℥i. (gr. i.) ter die.

8th.—Constitutional symptoms relieved; yellowness nearly gone; lividity has extended to all the toes; great discharge from the abscess in the ham; great pain in the knee and foot; the sloughs remain stationary,—no attempt at granulation under them. At a consultation held this morning, it was deemed advisable to amputate the limb, as the only means of saving his life.

Operation performed by Mr. Bagnall, about half-past 12. The common circular incision made about half way up the thigh. Bore the operation well; much venous blood lost. A great number of vessels required ligature (twelve or fourteen). Stump dressed lightly. It is useless detailing the after-treatment; suffice it to say, that the stump healed by the first intention, with the exception of the part the ligatures came through, which was perfectly healed, and the patient walking upon his crutches in the garden at the end of the third week from the operation.

I examined the limb after its removal, assisted by my friends, Dr. Edwards and Mr. Hanmer, surgeons of this city, when the following appearances presented:—

The toes in a state of mortification. Three superficial sloughs on the outside of the leg, one immediately above the tarsus, another half way up the leg, and a third near the head of the fibula. On making an incision through the skin and cellular tissue, the latter was found generally diseased, and in several places sphacelation was commencing.

The abscess which had been opened in the ham was found to be very extensive, having burrowed underneath the fascia to the anterior part of the leg, nearly as far as the ankle; it contained a large quantity of thick, reddish-coloured, unhealthy pus; from this abscess there were two openings into the joint, one in the ham, and the other anterior to the insertion of the biceps: the edges of these openings were jagged and uneven. On tracing the course of the artery, which had been previously injected, it was found to be obliterated, from just below the point where it gives off the superior articular arteries, nearly to its bifurcation into the anterior and posterior tibial arteries; the *nerve* for this distance also was slightly enlarged, and firmer than natural, having a cord-like feel, the whole being so closely connected by dense cellular tissue as to be scarcely separable. The attachments of the muscles were all perfect, and did not appear to have been lacerated. The superior articular arteries were not enlarged. With respect to the joint, there had been a complete disruption of the crucial and posterior ligaments (the lateral ligaments on both sides perfect): the anterior crucial ligaments had been absorbed, but the posterior crucial ligaments and the posterior ligaments were united into one band. The synovial membrane was healthy, with the exception of a slight degree of roughness near the patella; the semi-lunar cartilages, as well as the cartilages on the ends of the bones, were healthy. There was no fluid in the joints.

Remarks.—The above case is interesting in many points of view; firstly, as regards two such rare dislocations occurring together without any external marks of violence; dislocations which, when occurring separately, require great violence to produce them. Secondly, as regards so complete a dislocation of the knee itself, an accident of very rare occurrence; it is of so rare an occurrence, that in the various authors I have consulted on the subject, I find only two cases mentioned. The first is a case that was admitted into Guy's hospital, in the year 1802; and the other was reported to Sir A. Cooper by Mr. Toogood, of Bridgewater, and happened in 1806: but I find very little said upon the subject. Both the above cases are mentioned by Sir Astley Cooper in his valuable work on Dislocations, p. 150 and 155. With respect to the dislocation of the hip, I shall say nothing, except that it shews how little is requisite

to be done in such cases, more than perfect rest; for, from the day of the accident, the patient never complained of pain, and said, if it was not for his knee, he felt so strong that he should be able to follow his work. I shall make no remarks upon the reduction and after-treatment, both being so fully explained in the case. The next thing that occurs to me, is, what was the cause, in this case, of the obliteration of the artery? was it from rupture of its internal coat at the time of the accident, or from subsequent inflammation about the part. In my opinion, but I may be wrong, it must have proceeded from rupture at the time of the accident, or from the artery being over-stretched and pressed upon by the condyles of the femur, during the time the dislocation was un-reduced, for I think the inflammation was not of so violent a nature as to cause obliteration, especially of so large an artery, and for so great an extent. I am also of opinion, that some of the fibrils of the nerve were ruptured, from the great pain and sensation of heat in the foot, which he experienced the whole of the time, from the accident to the time the limb was removed. The mortification, I think, is easily accounted for; for, owing to the very rigid antiphlogistic treatment adopted, acting upon his scrofulous habit, nature had not the power sufficiently to dilate the anastomosing vessels, in order to carry on the circulation in the limb.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

Cyclopædia of Anatomy and Physiology. Edited by R. B. TODD, M.D. Lecturer on Anatomy, &c. Part VI.

IT gives us much pleasure to observe the steady progress of this valuable work. The numbers already published are a sufficient proof of the pains taken by the editor, as well as a guarantee for their continued excellence. We confess we had our doubts on its first announcement, and even for some time after the appearance of some of its earlier numbers, whether we should be justified in recommending, without further assurance of its mark and likelihood, a production which required so much time, and such able and varied assistance for its completion. Warned by the history and career of another similar performance, we were cautious. We are, however, now satisfied, that the Cyclopædia of Anatomy is a publication deserving of every encouragement. So far from having exhausted its attractions in the commencement, and then fallen off, leaving subscribers to regret their ill-advised patronage, prematurely bestowed, it increases, we think, in value in every succeeding number. The articles already given, on the subject of comparative anatomy, for example, are of transcendant merit; it will be sufficient to refer, in proof of this, to the article *Aves*, by Mr. Owen, that on *Annelida*, by Dr. Milne Edwards, *Arachnida*, by M. Audouin, and *Cetacea*, treated in the present number, by M. Frederic Cuvier. In physiology, also, we have *Asphyxia* ably discussed by Dr. Alison, and *Absorption* by Dr. Bostock. In the department of human anatomy, normal and abnormal, the editor is assisted by several first-rate contributors. In short, taken all in all, we believe the work is one that is not likely to be easily rivalled in this or any other country of Europe.

Our present notice is brief and general; but on future occasions we hope to enter more into particulars, and point out whatever strikes us as specially deserving of notice. We must not, however, close without bearing testimony to the very superior style of typography and illustration adopted in getting up the work. As to wood-engravings, they are given in profusion, and many of them beautifully executed.

Zeitschrift für die gesammte Medicin: herausgegeben von DIEFFENBACH, FRICKE, und OPPENHEIM. Band 1, Heft 4. Hamburg.

The present part closes the first volume of our Hamburgh contemporary. It contains, like its predecessors, which we noticed not long ago, much variety, and a careful selection from different quarters. The arrangement of the journal is excellent; and so far as it has gone, does great credit to the learned editors. We know no better periodical to recommend to our younger friends who are at once desirous of having a general

view of what is passing in the medical world, and of forming, at the same time, a familiar acquaintance with the noble language of Germany.

MEDICAL GAZETTE.

Saturday, May 14, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

POPULATION AND SUSTENANCE.

THE startling theorem that the population of the earth proceeds in a geometrical, while the means of support increase only in an arithmetical ratio, has given rise to numberless speculations among the political economists. Many benevolent persons have been alarmed beyond measure at the prospect, and some have even gone so far as to fancy, that when the earth is covered with people, mankind must needs devour one another. Some feeble attempts were made at first to disprove the general position, laid down so plausibly in mathematical form; these, however, having failed, the grand inquiry then became, what was best to be done? But the methods proposed for obviating the great calamity shew, that however inexpugnable the theorem itself might be considered, the doom which it threatened was not held to be so very inevitable. It was thought, on the one hand, that the means of sustenance might, by the ingenuity and industry of man, be largely increased; while, on the other, nothing less, it was supposed, would answer the purpose, than putting a check on the spread of population itself. A third party seems to be of opinion, that it would not be unwise to take advantage of both expedients.

With the latter class we must rank Dr. Loudon, of Leamington, who has just produced a pamphlet on the Equilibrium of Population and Sustenance*. This gentléman admits that the philosophers who advocate the *check*, have broached "certain doctrines alike disgraceful to those who have suggested them, and injurious to the interests of morality;" he accordingly only proposes "a mode by which, *if necessary*, a check both moral and healthful may be applied to population, founded simply on the laws of nature, which, in this as in all other cases, are so well adapted by Providence to promote the happiness and welfare of those beings which, in his wisdom, he has placed on this earth."

The reader is probably curious to know what is Dr. London's mode of restraining the population within limits. It is easily told. Mothers are to suckle their children for at least 15 months.

Dr. Loudon grounds this suggestion on some ingenious calculations. From statistical data, he deduces the age of 24 as the average age at which women marry; 44 he assumes as the average age for the termination of child-bearing: there are, therefore, 20 years available for getting a family. But the number of children to each marriage, according to Dr. Loudon, is 4·5, and one-half of them die before the completion of the 24th year: he consequently infers, that if by any means we could limit the children to four in each family, the population would not increase.

Now this he thinks might be done, both *morally* and *healthfully*, by extending the term of lactation. Ten months, he says, is the average period of suckling children in this country; increase it to 15, and we at once reduce the 4·5 in a family, to 4. But we had better quote the Doctor's own words.

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* The Equilibrium of Population and Sustenance demonstrated; shewing, on physiological and statistical grounds, the means of obviating the fears of the late Mr. Malthus and his followers. By Charles Loudon, M.D., &c.

"The next inquiry which necessarily follows is, what increase of time, beyond the ten months of lactation, would be necessary to keep population in check, as it advances at present in England? The reply is very simple. Admit, in each instance, the nine months of gestation, the ten months of lactation, and one-tenth of the remaining thirty-five months as an equivalent for the present increase of population, and the period will be thirteen months and a half. To this, however, must be added, an allowance of six weeks for the chances of impregnation during the three months and the six weeks, on the supposition that, in every three instances of lactation, impregnation takes place once. Thus the entire time will be fifteen months, or in other words, *one-third longer than the present period.* This extension of lactation must necessarily increase the 4.5 years between each child, approximately to 5.; and, consequently, reduce the 4.5 children in a family to 4. It has been already seen, that one-half of our numbers die under the age of marriage for females; the result will then be, that there will remain only a representative for father, and a representative for mother, on an average, in every family in the country."

It is a good thing, no doubt, to have an expedient of this kind in our quiver, in case we should need it. But there is not much chance of such an emergency: at least, as *we* calculate, on Dr. Loudon's own principles. He thinks that if the number of children to each marriage were only 4, the population would not increase; whereas, it being 4·5 at present, there is some reason to be apprehensive. Now we can relieve him from at least some of this apprehension: for we can assure him that he adopts an average which is quite too high; and if 4 children to a marriage be calculated to alleviate every anxiety, be it known to him, that the actual number in this country very little exceeds that, it not being more than 4·1, or 416 to the 100. For this fact we can refer to the ablest practical statistician in England—we mean Mr. Rickman, who has settled the point not long since in this journal*.

A prolongation, therefore, of the period of lactation will not be necessary, even were it practicable. And it is lucky, as we think, that it is neither: for by what special management could the female population who are mothers be induced to suckle their infants longer than is customary? Though Dr. Loudon says that the average period at present is ten months, we have our doubts on that head: perhaps for those who do give suck, the average may be correctly stated; but when we consider the numerous disturbing causes to which women in civilized life are subject, and how many are precluded by their state of health and their habits in society from becoming nurses, we rather suspect that the period assigned is excessive. How much less likely, then, is it that mothers generally will be persuaded—no matter how patriotic the motive, to give their children fifteen months' suck?

Dr. Loudon argues ingeniously and learnedly in favour of the propriety of this lengthened period of lactation.

"It will scarcely be denied either, that, as nature has furnished the mother with the milk for a longer period than custom demands it, she had some good end in view for both mother and child; otherwise she would have stopped the secretion of the milk at a definite time, in like manner as she has made the period of gestation definite. The circumstance of a child being, in comparison with the young of the lower animals, so long unable to provide for itself, strongly tends to corroborate the proofs already advanced, that nature had in view a more protracted period for lactation than is now allowed. Some of the older French writers, following, as they believed, the laws of nature, fixed the period of weaning at about fifteen months; at which time they supposed the infant had got its eight incisors and four canine teeth. Desormeaux mentions in-

* MEDICAL GAZETTE, xvi. p. 654.

stances of mothers suckling children for three, four, five, and even seven consecutive years.

"That the period of lactation has a great influence over the numbers of mankind in various countries, is proved by numerous facts. In China, where the population is so great that the inhabitants adopt the inhuman practice of infanticide, 'as soon as a child can put its hand to its mouth, it is weaned, and taught the use of its right hand.' On the other hand, Hunter mentions, in the Memoirs of his Captivity amongst the Indians of North America, that whenever their children are sufficiently old and strong, the Indian mothers 'wean them, and suffer them to run about generally between the age of two and three years.' This circumstance will alone account for the thinness of these tribes in a fertile country, when compared with other barbarous and even civilized nations. Dr. Lowenfeld has remarked a similar extension of lactation amongst the Carribean tribes, to the south of Berbice, Essequibo, and Demerara. There, also, the population is remarkable for the paucity of numbers in proportion to the fertility of the soil; and what is of more importance, such a number as seven or eight to a family is scarcely known. It is highly probable, also, that a like cause exists for the decrease of the negro population in Jamaica, not only amongst the Maroons, but amongst the imported Africans, which circumstance will more satisfactorily account for the falling off of the negro population, than the alleged cruelty of the planters, brought forward a few years ago, in the House of Commons, by Mr. Fowell Buxton."

We ought, however, to add, that it is not to be inferred from the seriousness with which the author recommends his "moral and healthful check," that he has any wish to inculcate its adoption in the actual circumstances of the country; he merely intends it as a measure of reserve, in case hereafter there should be some pressure of necessity. And that this is not likely soon to occur he has no hesitation in admitting, on the authority of some late eminent writers, who hold that the resources of mankind for the production of food, in the Western world alone, are such as to meet every possible increase of population for an indefinite number of ages to come.

FACTORIES' REGULATION BILL.

A NEW bill, of a very questionable, or rather an unquestionably bad, character, was read a second time in the House of Commons on Monday evening; the amendment for postponing it to "that day six months" being negatived by a majority of only 2, where 354 voted. Our readers will recollect that, by the act of 1833, it was so ordered that after thirty calendar months, children under 13 years of age were to be protected from more than *eight* hours' labour. Those thirty months expired on the 1st of March last; and the new provision has no sooner come into operation, after two years and a half of anxious expectation, than another measure is introduced, whereby children of 12 and upwards are to be worked for *twelve* hours daily, or *sixty-nine* hours a week. Mr. Poulett Thomson moved the second reading; the amendment was moved in an able speech by Lord Ashley. "He had supported the original bill," his Lordship said, "and he would oppose the present one on *medical* grounds chiefly. He found from the report of the commissioners, that out of thirty-one medical gentlemen who had been examined, no less than sixteen were opposed to the present bill, and in favour of a ten hours' bill, stating that the latter was the full amount of labour to which children ought to be subjected. Of the remaining fifteen gentlemen, Dr. Shaw, of Manchester, said that from ten to eleven hours were sufficient. Mr. Roberton and Dr. Bardsley said much the same. Dr. Carbutt, of Manchester, seemed uncertain, and said, perhaps twelve hours; but of all the fif-

teen, there was only one medical man (Dr. Phillips, of Manchester) who boldly asserted that twelve hours' labour was by no means injurious. All these witnesses were speaking as to the employment of persons under and up to 18 years of age. The evidence of the report shewed, that the excessive fatigue of twelve hours' labour, the want of sleep, the peculiar attitude in which the labour was performed, the heat of the atmosphere in which the work was done, tended to, and frequently terminated in, permanent disease; and the Commissioners themselves, in their report, proposed that until the commencement of 14 years of age, the hours of labour should not exceed eight hours a day." Yet in the teeth of all this evidence, the infant operatives are to be worked twelve hours a day, to satisfy the cupidity of certain master manufacturers, who have influence with men in power!

The debate on Monday night possessed much interest. Mr. Brotherton, the member for Salford, made a very excellent speech, tracing the whole history of legislation in this country, on the subject of labour in the factories, for the last thirty years. But useless was all reasoning from medical or other experience: the ministerial party had it their own way. Let us hope, however, that in Committee, or in passing the House of Lords, the measure may still be so modified as not to fix a permanent stain upon the character of England, by offending so outrageously against both humanity and justice.

MR. WARBURTON AND THE DEPUTATION TO THE CHANCELLOR OF THE EXCHEQUER.

It appears from a paragraph in the Court Circular, that certain Licentiates of the College of Physicians, headed by Mr. Warburton, have had an interview with the Chancellor of the Exchequer. — But *no meeting of the Licentiates has been convened*, although we are informed that several convocations have taken place of some eight or ten physicians who happen to be Licentiates. The fact is, that on the Petition of the Licentiates being presented to parliament two or three years ago, an attempt was made to form an Association, but the great body of the Licentiates declined to have any thing to do with it. May we inquire whether the gentlemen who recently waited on Mr. Spring Rice had the candour to explain this to him, and that they could only give their opinions in their individual capacity? Again: Mr. Warburton, as chairman of the medical committee, has voluntarily placed himself in a situation in which impartiality is looked upon as a cardinal virtue—not less necessary than uprightness in a judge. How does he reconcile this with the fact of heading a deputation composed of gentlemen avowedly and actively at variance with their College? We shall recur to these questions hereafter—meantime "we pause for a reply!"

TRIBUTE TO SIR CHARLES BELL.

We understand that some of the friends and pupils of Sir Charles Bell intend to present him with a tribute of their respect and regard on his leaving London for the northern metropolis. The subscription from each is limited to a guinea, and its object being to obtain many names rather than a large amount, we have satisfaction in stating that more than a hundred gentlemen have already enrolled themselves in the list.

MEDICAL INSTITUTIONS OF IRELAND.

In another part of our present number will be found the first portion of a report on the medical establishments of the sister island; a valuable and curious document, drawn up with great ability, by Dr. Borrett, one of the assistant commissioners appointed by government. We shall take another opportunity of noticing its details.

M. BROUSSAIS AND HIS PHRENOLOGICAL LECTURES.

After some years of repose and comparative oblivion, the veteran *physiolo-*

gist (as he was once called *par excellence*, by his disciples) has taken the field in a new warfare. We fear he has forgotten the sage maxim,

> "Solve senescentem mature sanus equum;"

but let us hear what our able contemporary, the *Gazette Médicale*, says of him. A more skilful dissection of the character and pretensions of M. Broussais we have not hitherto met with:—

M. Broussais setting up for professor of phrenology! What a falling off is there, for a man who could once boast of being at the head of an imposing school! We should think he had better remained in peace, brooding over the pleasant recollections of his ancient triumphs, than have entered on a new career, for which his education, literary and scientific, and the peculiar character of his mind, render him so totally unfit. He gives up medicine, and plays the philosopher. Philosophy, no doubt, is an excellent thing to put in practice: it has been, from the earliest times, the great resource for fallen greatness, glory obscured, and ambition blighted. M. Broussais might find it serviceable in this respect; for having closed his mission long ago, he had nothing now to do but to enjoy his retreat peaceably, cultivating his garden, and receiving the occasional visits of some of his old friends. But this is not the sort of philosophy for M. Broussais. He is not one of those who hastily abdicate; after struggling as long as possible against the torrent which utterly swept away his medical doctrines, he did not quit the field till perfectly assured that all his ideas lay dead upon the plain, and that he had not a single soldier left. It is after all this that he has determined to open another campaign, in a new seat of war, against new enemies, and with another army.

But the enterprise is evidently beyond his powers. The two lectures hitherto delivered have shown the public what *we* were quite prepared for—that though M. Broussais may have a taste or a passion for philosophy, he is wholly incapable of philosophising. His mind, whether owing to some innate defect or want of early culture in that direction, is obstinately adverse to it. He neither thoroughly understands the questions he treats of, the systems which he combats or supports, nor the very language he uses. Completely out of his latitude, he feels that he cannot proceed safely without sounding at every inch of his progress; he does not know what shoals and quicksands beset him: he is not even acquainted with the narratives of preceding voyagers; and his perils in the deep are only so much the more frequent and the more dangerous as he advances with intrepidity and a most hazardous assurance. M. Broussais fancies himself a metaphysician, a psychologist, a moralist, a philosopher in short, simply because he is acquainted with medicine, for medicine comprehends physiology, a science which, according to him, is the science of man. He thinks it is enough to substitute for the terms, ideology, psychology, or metaphysics, that of the *physiology of the brain*, in order to solve all problems, all questions coming under these denominations, and that in this way he may mount up to Plato, Descartes, Leibnitz, Locke, Kant, and all the other sages that ever lived,—for it is beyond a doubt that people cannot think without a head. And, accordingly, it is marvellous to witness with what superiority he treats those poor philosophers who venture to talk of the human mind, without being acquainted with the brain.

We have never thought phrenology worthy of a serious discussion: as a psychological system, it is contradictory in its very conception; as an anatomico-physiological theory, it is an hypothesis wholly destitute of proofs. It is a theme for the day, on which some varnish of science and philosophy may be thrown, but which, for those who think deeply or seriously, is destitute of any really scientific character. Charlatans have got hold of it, and make a trade of it, just as the nativity-casters of old made a trade of astrology. Among its supporters, always excepting M. Broussais, there is not an individual whose name possesses the least weight. It is deserving of remark, that not one of the eminent zoologists and comparative anatomists of the age, who have so deeply studied the organization of living beings and the higher physiology, have even deemed it worthy of notice. Cuvier never spoke of it without disdain. MM. de Blainville, Geoffroy St. Hilaire, Serres, Flourens, Magendie, Dumeril, Dutrochet, and all those physiologists whose names have become famous throughout Europe, never thought it deserving of

attention. The same thing is true with respect to England:—with the exception of Mr. G. Combe, a man of talent and cleverness, who has become the official champion of phrenology in that country, as M. Broussais has in France, nobody of any note has taken it up. In Germany, the cradle of organology, this pretended science exists only as a name. All the great anatomists and physiologists, the Rudolphis, the Treviranus', the Meckels, the Carus', the Tiedemanns, &c. whose doctrines mark the highest and most advanced state of science at the present æra, say nothing about it. Everywhere, in short, throughout Europe, what is called phrenology is thrown aside into the by-places of science and the learned world: the study of it is everywhere left to the trading trickery of charlatanism.

Now, M. Broussais' phrenology is in no way different from that which is met with elsewhere; it is not a whit more profound, more learned, or more ingenious: it is an insipid reproduction of all that Gall and Spurzheim, and their followers, have repeated *ad nauseam.* The course, therefore, if we may judge by the two lectures already delivered, will offer nothing original in its matter, while its manner, excepting, perhaps, some sallies of controversial irritability indulged in by the professor, and which may be thought amusing, is, in every other respect, of the most vulgar and common place kind. Whenever M. Broussais quits the tangible arena of anatomy, and attempts to soar in the region of metaphysics, his language becomes almost unintelligible, because he does not altogether understand it himself, nor is he perfectly acquainted with the words which he employs. It is but too evident, that these abstract researches are beyond the ordinary range of his powers. The phenomena of mind, rational and moral, escape him on all sides through their subtlety and complexity; he can neither analyse, observe, or describe them. In vain would he persuade his hearers that all is capable of being reduced to sensible facts, and that physiology embraces every thing; he is obliged to borrow the language of the psychologists, for his physiology fails him. The words liberty, morality, inclination, instinct, passion, sentiment, faculties, intelligence, will, desire, attention, conscience, judgment, reason, idea, exist in all languages, for the things which they represent exist in the human mind, and those things constitute the material of the moral science which M. Broussais calls phrenology. Moral science, however, is very intricate; it is not to be learned in camps or in hospitals; it presupposes literary studies. Now M. Broussais has never had the opportunity of philosophising to any purpose. Not that his mind is not of an abundantly speculative cast, for all his works show the contrary: but this tendency, though it were to amount to a monomania, would not still be a whit the more philosophical. He has some resemblance to those poets,—

"Qui prennent pour génie une ardeur de rimer."

He throws himself recklessly among those problems which have exercised the sagacity of the greatest minds,—about the data he cares not; nor does he spend a thought in inquiring whether any one ever entertained those questions before him. It is marvellous to observe him cutting and slashing, dogmatising and concluding, in matters about which he knows just as much as he does about hydrostatics.

We shall not attempt to enter into a critical detail of M. Broussais' lectures. A volume would not suffice for pointing out all their errors, contradictions, and anomalies of every sort. Some journals have promised analyses, which we think they will not easily perform, unless they can first translate the lectures into intelligible language. Either report or analysis *we* deem unnecessary. Most of our readers are acquainted long since with the *philosophy of irritation*, and, as to the phrenology, for a franc M. Hottin's synoptical table may be purchased, which will tell all that the professor knows or can teach on the subject. We may notice, however, a few points cursorily.

"What is phrenology?" says M. Broussais, in his opening lecture. M. Lelut, in an excellent book published a few days ago, has considered phrenology as a system of psychology: but M. Broussais rejects the definition with a kind of horror; in his opinion the word psychology should never be pronounced within the walls of a school of medicine. Phrenology, says he, is not a psychology, it is *the physiology of the brain.* Every one, of course, may choose his own definitions, nor shall we quarrel with that now

given: but we must take leave to say, that M. Lelut seems to be a better Grecian and etymologist than M. Broussais, for the terms *phrenology* and *psychology* are as nearly as possible synonymous, implying doctrines respecting the mind or the soul. The very name of the pretended science is a contradiction—a misnomer: craniology, organology, better express what it is said to mean. Did we think it worth while to propose a more fitting appellation, we should suggest *encephalology*, as limiting formally to the study of the *brain* a science with which the *mind* has so little to do.

Having thus defined phrenology to his satisfaction, M. Broussais plunges at once into the darkness of metaphysics. Forsaking wholly his four busts in plaster and pasteboard, he sets himself to talk of Plato, Aristotle, Descartes, Kant, Locke, Reid, and Condillac, passing before him in review all ancient and modern philosophy. In the course of his lectures he may say many wonderful things, but it is quite impossible he can surpass this extraordinary digression on philosophy. Only imagine a man, of talent and ingenuity if you please, but without any previous study, undertaking to lecture on astronomy!—applying the technical terms of that science at random — parallax, aberration, nutation, right ascension, precession, apsides, syzygies, &c. — quoting Eratosthenes, Hipparchus, Ptolemy, Tycho-Brahe, Kepler, Copernicus, and criticizing Newton, Laplace, and Herschel, without ever having read or understood their writings. So in a great degree was it with M. Broussais, in his critical expositions of the philosophers of mind.

But what was perhaps most worthy of admiration, next to the assurance of the Professor, was the simple docile good faith of his audience. Who could have thought, that in the country of Descartes, such teaching would be listened to with acceptation and applause? The authority, the celebrity, and the popularity of the Professor, no doubt contributed much to this result. But the bulk of the audience consisted of the students of the school, who know no more of phrenology than they can see in M. Guy's shop, and who have no further tincture of philosophy than the few words gathered for their bachelor's degree. Of such auditors, phrenology, professing to rest on anatomical and physiological data, is a philosophy altogether to the taste: they are delighted to hear from the lips of M. Broussais that intellectual and moral science is nothing more than the physical science of man; and that, in order to understand the human mind, it is only necessary to study the brain. All this, however, is great nonsense: change of words cannot alter things; and, deceive himself as he may, the professor cannot advance a step in his subject without leaving his physiology behind him, and getting into the province of psychology. Curious as it may seem, M. Broussais appears to have been so much the dupe of his own phraseology as to have actually taught for three hours a science the very name of which he would not pronounce in a medical amphitheatre, lest the walls should tumble upon him!

In his second lecture, M. Broussais entered into a long exposition of the gradual development of the intellect of the fœtus, of the infant, of the adult, in man, and other animals. He only repeated, in the trite, commonplace way, what is to be met with every where since Buffon's time, in all treatises and manuals of physiology and natural history. As usual, he often mistook hypotheses for facts. He also set up a classification of the faculties of his own, in opposition to those of several philosophers — particularly those of the eighteenth century. In these digressions, so thick was the obscurity at times that nothing whatever could be seen. Reid, Descartes, Berkeley, &c. were occasionally brought on the scene, or at least certain shreds and patches of their doctrines, which were compared, confounded, distorted, and mutilated, in the most cruel manner. We shall be heartily glad when M. Broussais comes to phrenology in earnest—that is to say, to the enumeration of the 27 organs of Gall, or the 35 of Spurzheim, whichever he pleases, so well mapped out in plaster by M. Dumontier, but so invisible in nature: he will be here much more at home than in those metaphysical regions where, at present, he scrambles so much in the dark. Let him speak of the brain, its convolutions, its commissures, its divergent and convergent fibres, for this is of the province of anatomy and physiology; but let him, once for all, allow to rest in peace Plato and his *ideas*, Aristotle and his logic, Descartes and

his *cogito*, together with the Germans, the English, and the Scotch, for they are certainly wholly out of his province.

We do not intend to trouble our readers with further notice of M. Broussais' course; it would be only trespassing on their patience.

Since the preceding was written, the course of phrenology has been discontinued, for what reason we do not exactly know.

ROYAL INSTITUTION.

Friday, April 29, 1836.

Professor Faraday on Plumbago.

A VERY large audience was assembled to hear the lecture this evening. Dr. Faraday began by noticing the ordinary uses of plumbago, or black lead, as familiarly employed in the arts for the purposes of writing and drawing. He considered it as one of the many forms which carbon assumes in nature, but which it was totally out of our power artificially to produce. Charcoal, as manufactured in certain processes, exhibited sometimes a layer of plumbago on its surface, distinguished by its glistening aspect, but so thin as to be totally useless. Iron also is sometimes converted into a kind of plumbago, by the action of dilute muriatic acid, or even sea-water: as, for example, the iron used for protecting the copper bottoms of ships, on Sir H. Davy's plan. Plumbago is also generated in small quantity during the preparation of cast iron.

Several of the properties of plumbago were then described—such as its remarkable power of resisting heat, which renders it so excellent a substance for the manufacture of crucibles and furnaces. The feebly conducting power of plumbago, with regard to heat, was beautifully and simply exhibited by the friction of a metal button; when rubbed strongly, five or six times, on a bare board, it ignited phosphorus on being applied to it; but coat the board with plumbago, and then rub the button, it will be found that double the quantity of friction will scarcely produce the same effect.

A great desideratum is the power of hardening ordinary plumbago to any required extent: we can soften it at pleasure, but to give it only one degree of hardness—to be able to alter its consistency, for example, from that of H to HH as sold in the shops—would be so desirable to the manufacturer that he could afford a large premium for the discovery. Mr. Mordan would give 1000*l*. to be in possession of such a power. The plumbago, procured in nature, is of very different degrees of value; and that used for black lead pencils varies in price from 30*s*. the cwt. to 30*s*. or even 45*s*. the lb. The best comes from Borrowdale, in Cumberland, is brought to a single depôt in London, whence it is issued to every part of the British empire. Dr. Faraday's account of the plumbago market was amusing: it is held, on the first Monday of every month, at a public house in Essex Street, Strand, where agents from all the manufacturers who use black lead meet together. The same lumps of plumbago are frequently presented month after month for sale; but when any new pieces are produced the greatest excitement prevails—their quality is closely examined, and the purchasers who have the first choice are obliged to pay as much as 45*s*. a lb. for their sample. But few manufacturers went to this expense: the great majority were content with the inferior kinds; and even the very dust of plumbago was turned to account in making pencils "for sale." The dust was mixed with the sulphuret of antimony and made into a paste, which was then spun out like vermicelli, to be embedded in wooden handles, and sold at the stalls and by hawkers for a few pence per dozen. But the practice of the best pencil makers was very different: none but the most expensive plumbago was suited to their purposes; and, notwithstanding the perfection to which the machinery for manufacturing pencils was brought, such was the waste of the valuable material that no more than half an ounce of "leads" for ever-pointed pencils could be procured from a pound of pure plumbago. It may be laid down as a fact, that a good cedar pencil cannot be sold for less than sixpence, nor a dozen points for less than half-a-crown. The latter part of this interesting lecture was devoted to a description of Mr. Mordan's machinery for pencil making, which, by the favour of Mr. Mordan, was submitted to the inspection of the audience, and actually worked before them. All the processes were performed by three experienced workmen who were in attendance.

Friday, May 6, 1836.

Professor Daniel on a new and constant Galvanic Arrangement.

In a paper recently read before the Royal Society, Mr. Daniel has given an account of a new galvanic circuit, having striking and valuable properties. He gave a familiar explanation of it this evening to the members of the Royal In-

stitution. After a just tribute to Dr. Faraday, to whom he acknowledged himself indebted for the fundamental idea of his new plan, he proceeded to lay down certain principles relative to the mutual action of the metals and fluids employed in the voltaic circuit. He found, he said, that the ordinary battery soon became exhausted, by the platina, or copper, becoming coated with zinc; and this suggested to him one part of his present contrivance —namely, the enclosing the zinc in animal membrane. Another point on which he expressed himself satisfied, was, that the extent of surface of the zinc was immaterial: a small stick of zinc was sufficient to oppose to a large plate of copper, silver, or platina. Hence he was led to the construction of a simple but very effective battery. He took a cylindrical copper can, about eight or nine inches in height and three in diameter, within which, enclosed in a tube of animal membrane, he suspended a slender stick of zinc. The tube was fixed to the bottom, which was perforated, the aperture being connected with a glass syphon passing from the bottom of the can to its side, along which it ascended to an equal height. Dilute sulphuric acid was then introduced into the membranous tube, and solution of sulphate of copper into the space around it. The arrangement was then ready for action, and the circuit was formed by connecting the zinc with the copper, little cups containing mercury being attached to each. A set of eight or ten of these cans, or cylinders, when put in action, produced a brilliant intense spark, and ignited iron wire. Oxygen and hydrogen gases might be readily procured by introducing the positive and negative wires into separate glass jars in a water-trough; and as the action of the battery could be kept up for hours, or at pleasure, Mr. Daniel thought that it would afford the readiest source for procuring those gases pure, for experimental or for laboratory purposes. The whole arrangement was exhibited in action, and seemed to act admirably. The only attention required during the operation of the battery, was to renew occasionally the dilute acid and the solution of the copper salt. The former was done by simply pouring in fresh acid, the fluid already within the membrane being carried off by the syphon: the sulphate of copper was supplied by allowing that substance to drop into the exhausted solution from a colander-like dish, fitting between the membranous tube and the sides of the can. If this arrangement can be made to work on a large scale as effectually as it does in the lecture-room, and as economically as it promises, it must prove a highly valuable acquisition to the practical chemist.

ON DISEASES OF THE SPLEEN,

AS THEY OCCUR IN INDIA.

By J. O. Voigt,
Physician to the Danish Establishment of Frederiksnagor (Serampore).

Chronic diseases of the spleen are so frequent and fatal throughout India, especially in the low marshy provinces of Bengal, that we have good reason to complain of the neglect with which they have hitherto been treated. Most writers on the diseases of warm climates either content themselves with merely mentioning them, or else despatch them in just as unsatisfactory a manner as the authors of general systems of medicine. Even Dr. James Johnson, in his excellent work on Tropical Climates, passes them over altogether; and Annesley's voluminous "*Researches*" and "*Sketches*" contain comparatively little on the subject. Mr. Twining, however, surgeon to the general hospital in Calcutta, has given, in the third volume of the Transactions of the Medical Society of that city, a good treatise on Splenalgia.

The chief forms under which Dr. Voigt observed affections of the spleen to occur were, what he terms *splenitis chronica*, *splenalgia congestionis*, and *lien ingens*.

Chronic splenitis displays a more or less clearly marked inflammatory diathesis, and is attended with pyrexia, considerable pain, and an uncommon degree of weakness: it chiefly attacks children of European origin, and those of rich natives, as well as persons of a more advanced age who are addicted to a stimulating diet; and appears to be principally seated in the proper membrane of the spleen. The swelling, in the first stage, is never very great, and often scarcely perceptible.

Congestion of the spleen (or splenemphraxis) shews plain marks of an atonic diathesis, and is not at all, or but to a trifling extent, attended with febrile symptoms; it does not occasion much pain, but causes a considerable tumor, which occasionally fills the whole of the epigastric and mesogastric regions. This disease most generally occurs among the natives, and is seated in the spongy parenchyma of the organ.

Enlargement of the spleen often occurs and continues for a considerable period without pain or injury to the constitution; it does not appear to be attended with any obstruction, and is observed mostly amongst elderly individuals of the natives.

1. *Chronic splenitis* generally commences with anorexia, restlessness, sleeplessness, and a peculiar irritability of mind, which

is especially remarkable in children. They gradually lose all desire for play, wish to be constantly carried, hang the head, cry frequently, and manifest the greatest indifference to all that passes around them. After these precursory symptoms have continued for some days, and sometimes even two or three weeks, the essential symptoms of the disease begin gradually to appear. The face becomes pale, lead-coloured, or sallow, and the conjunctiva of a pale bluish colour. The skin, especially of the abdomen, communicates a disagreeable sensation of heat and dryness, and the patient falls into a state of weakness greatly disproportionate to the duration and degree of the attack. The pulse is frequent and somewhat hard, and headache, a peculiar uneasiness, slight difficulty of respiration, palpitations, and occasionally pain in the left shoulder, supervene. There is a constant feeling of tenderness and weight in the left hypochondrium, which is increased by pressure, and that often so much as to cause a loud scream. On examining the patient while lying on his back, and pressing with the fingers under the false ribs of the left side, a hard tumor is felt, which is greater or less according to circumstances, but is always of much smaller dimensions than in cases of splenalgia congestionis. The erect posture is uncomfortable to him: he likes best to lie on his left side, with the body somewhat curved. Although the tongue is moist and clean, he complains of thirst, and, after his meals, of gastrodynia, flatulence, and *ardor ventriculi*. The bowels are very irregular, but generally costive; the fæces are brown, green, or sometimes black; and the urine is pale and copious. After an uncertain period, the disease terminates either by recovery, or by passing into other diseases, and causing death.

2. *Splenalgia congestionis* is the most usual of the chronic spleen diseases prevalent about Serampore. Its most remarkable precursory symptoms are lassitude, heaviness, a dislike to any kind of exertion, weakness, costiveness, and a sense of heat in the left hypochondrium. These are followed, after some time, by a tumor in the region of the spleen, which, though tender to the touch, is by no means so much so as in chronic splenitis. On the other hand, its bulk increases to such a degree that it generally occupies the entire of the left hypochondrium, and of the epigastrium strictly so called, and sometimes of the epigastric and mesogastric regions. The skin is dry and cold, and the cutaneous veins of the abdominal region are considerably dilated, and present a reticulated appearance. The patient experiences an indescribable lassitude and weakness, together with vertigo; the lips and gums lose their colour; and the face becomes dingy, sallow, and cachectic. The bowels are tardy and constipated; the fæces dark coloured; the urine pale and copious; the pulse small and feeble; the tongue generally clean and moist, and the appetite good and sometimes even voracious; but the process of assimilation goes on very imperfectly. In proportion as the strength diminishes, the flatulence, anxiety, and irritability increase; the extremities are reduced to skin and bone; cough and dyspnœa set in, and the feet become œdematous. The pulse is sometimes quickened towards evening, and the patient then suffers from an insupportable inward heat, which prevents sleep. He cannot bear to lie upon his right side, and sometimes not even on his back, but finds lying on his left side, with the body curved, the least uneasy posture. When walking, he generally bends to the left, and supports the left hypochondrium with his hand. The disease in females is generally attended with amenorrhœa. These symptoms, which, with a few exceptions, appear in every case of simple congestion of the spleen, continue till the disease is removed, or terminates in others, and eventually in death.

3. *Enlargement of the spleen* is generally observed amongst elderly natives, and is undoubtedly, in most cases, a sequela of mild intermittent fevers. The tumor is soft, not of very great magnitude, bears pressure, and produces no inconvenience except a sensation of weight. It does not appear probable that there can be any obstruction existing in such cases, which probably are of the same nature as those mentioned by Regia (Specim. observat. anat. and pathol. Ticin. 1784), in which, according to that author, the vessels can be beautifully injected.

The cachexia connected with *splenalgia Bengalensis* frequently manifests itself by a malignant ulceration, the disposition to which is so great, that leech-bites and blisters occasionally give rise to foul or phagedenic ulcers, which, in cases where mercury has been employed, and the patient is in a swampy situation, and debarred from free access of air, occasionally terminate fatally. *Stomacace* also, both simple and scorbutic, often occurs among the poorer natives; and although most authors recommend mercury in splenalgia, it is an indisputable fact that even a very small quantity (a few grains, for instance) generally occasions a profuse salivation, and occasionally so violent a *stomacace mercurialis*, that mortification sets in, the teeth drop out, the bones become carious, and death ensues.

We have given the description of the symptoms thus at length, as well because it is the most circumstantial that we have met with, as that it may have the effect of inducing the profession in those countries to pay more attention to diseases of the spleen than they have hitherto done. From contemplating a disease in its most exquisite form, as existing where circumstances are most favourable to its development, we are the better able to judge of its pathology, and of its bearings in various respects; and it is not unlikely that, even in this country, many symptoms, generally attributed to dyspepsia, &c. may arise from a milder form of the chronic splenitis above described. We learn, too, that this disease may exist to a considerable extent without producing any very perceptible tumor; and, on the whole, it is not unreasonable to conclude that a chronic morbid action, sufficient to produce considerable uneasiness and constitutional disturbance, may be going on in the spleen, for some time, without giving rise to any symptoms of such a nature as to lead us to suspect its seat to be in the organ.

As the author, on account of the prejudices of both natives and Europeans, has not had the opportunities that English medical men attached to the army or to hospitals in India have enjoyed, he is obliged to refer to them for a description of the appearances observed in the spleen after death. Proceeding next to the etiology of the disease, he contradicts Annesley's assertion respecting its comparative infrequency in India, and states that, at least in Bengal, the case is quite the reverse, both according to his own experience and that of Mr. Twining. The predisposing causes he mentions are:—1, season; splenalgia, though occurring at all times of the year, being most prevalent towards the conclusion of the periodic rain, and at the commencement of the cold season: 2, age and sex; children and delicate young men being most subject to it, while elderly persons, and women after puberty, are comparatively exempt: 3, low swampy situations, overgrown with jungle: 4, perhaps sol-lunar influence.

The most usual occasional causes are: 1, tedious remittent and intermittent fevers: 2, want of exercise and of proper clothing, unwholesome diet, and intemperance in eating; these causes often produce an idiopathic splenalgia among the natives: 3, abuse of stimulants, especially arrack: 4, opium-eating: 5, everything that has a tendency to debilitate the system in general, and the digestive system in particular; such, for instance, as depressing passions, &c.: 6, external injuries, such as contusions from falls; but this cause does not often come into play.

In speaking of the proximate cause of splenalgia, there is a remarkable coincidence in opinion between the author and Dr. Hodgkin, in his Essay on the Uses of the Spleen. After stating that it has been proved by the experiments of Defermon on animals, that the spleen is capable of admitting a considerable variation in its size, and that its vessels can bear to be greatly dilated for some time, without producing any local or general obstruction, he proceeds to observe that it is evident that, under particular circumstances, in the cold stage of intermittent fever, for instance, there is a large quantity of blood thrown in upon the abdominal viscera, which would have a most destructive effect upon the more important organs, if the spleen, from its spongy and elastic texture, were not adapted to serve as a temporary reservoir for a considerable portion of the superabundant fluid; and that repeated and prolonged congestions of this description must, in persons who have been exposed to miasmata and other debilitating causes, produce a state of irritation of the organ, which may terminate in chronic inflammation, or in an incurable induration.

Treatment.—The disease is always difficult to cure, mostly very obstinate, and frequently fatal. Accordingly Dr. V. describes, at a length commensurate with the difficulty and importance of the subject, the treatment that has been found most successful in its different forms; and makes some useful practical remarks on the inconveniences attending other modes that have been proposed by different individuals: the use of mercury, for instance, he most strongly reprobates. The measures he recommends, besides attention to the diet, &c., are to attack the inflammatory symptoms, when such are present, by leeches, gentle purgatives, tepid baths, and the application to the region of the spleen of a cloth dipped in nitro muriatic acid considerably diluted with water, and covered with an emollient cataplasm; both to be frequently changed.

The febrile irritation and local inflammation once removed, the next indication is to endeavour to diminish the bulk of the spleen. This is most likely to be effected by the continued use of purgatives combined with tonics, and by certain topical applications. He considers the preparations of iron in general, and the sulphate more especially, to have some specific influence on the spleen; but advises caution in its application, as an overdose readily produces cardialgia, gastrodynia, vomiting, and diarrhœa; and it is absolutely contra-

indicated where there is any febrile irritation present, as well as in hepatic, pleuritic, and dysenteric complications. The other internal remedies are aloes and myrrh, combined with senna, gentian, carminatives, diuretics, and diaphoretics; nitric acid; and tartar emetic in small doses. The topical applications are, friction with the flesh-brush, nitro-muriatic epithems, small blisters, stimulating liniments to the abdomen, and moxas.

The treatment of chronic splenitis, or of congestion of the spleen, difficult enough when they are simple, is rendered still more so by their complication with other diseases; for instance, in *splenalgia hepatica*, mercury, though indicated for the liver, cannot be employed, as it increases the spleen disease.

In another part of the paper Dr. Voigt makes the following remarks on the terminations of splenalgia. "In Bengal, it rarely runs on to suppuration, but, when not fatal, it generally terminates in induration, if not cured in time. The febrile symptoms then disappear, and the pain in the left hypochondrium is much diminished, but the tumor remains, and becomes hard and distinct. The health improves, and, with the exception of costiveness, a sensation of fulness and weight under the left false ribs, a dry cough, some dyspnœa, and occasionally a slight pain shooting to the scapula, the patient feels pretty well, and may live on for many years in that condition. He is, however, generally predisposed by it to fever, liver complaints, dysentery, dropsy, and cholera, by some one or other of which he is at last carried off. Splenalgia, especially when complicated, sometimes runs its course very rapidly, and may terminate in death in three weeks or a month. Œdema of the feet and legs, ascites, dysentery, ecchymoses, a malignant stomacace, and singultus, are the general precursors of death in subacute cases, whilst obstinate diarrhœa and hectic close the scene in the most usual form, splenalgia congestionis. Persons who have once had chronic disease of the spleen, are very liable to be attacked by it again.—*British and Foreign Medical Review, from Bibliothek for Læger*, No. 2, 1834. Copenhagen.

NEW MODE OF TREATING

LUXATIONS OF THE STERNAL END OF THE CLAVICLE.

By M. Velpeau.

No luxation is more easily reduced, or with more difficulty retained in its place. The difficulty is owing to the endeavour of the surgeon to oppose the power which tends to carry the clavicle forwards, instead of relaxing the muscles whose action oppose his wishes. Anatomy and experience shew that in these cases the anterior sterno-clavicular and inter-clavicular ligaments are broken, and that dislocation necessarily follows, as the articular surfaces are so constructed that they do not offer any resistance to the muscles, which immediately displace the end of the bone: the pectoralis major and internal portion of the deltoid drawing it forward, the trapezius and sterno-cleido-mastoideus drawing it upwards; whilst both sets are assisted by the large muscles of the trunk attached to the scapulæ. The deltoid, pectoralis major, sterno-cleido-mastoideus, and trapezius, are relaxed, and the rest neutralized, by carrying the elbow inwards and forwards to the lower part of the sternum, so that the hand may rest upon the opposite shoulder: when this is done, the bone returns to its place. It can be retained there by the following apparatus: a towel, folded thrice, is first placed round the thorax, and retained by braces attached to its upper border. The arm is then placed in the necessary position, and held by an assistant. The surgeon fixes the end of a bandage (eight yards in length) under the armpit of the sound side; brings it behind over the luxated clavicle; then downwards over a part of the arm; passes it behind and beneath the elbow; then again under the sound armpit, behind the chest, above and before the injured clavicle, so as to make three or four turns like the first. Next he passes the bandage, which has just embraced the elbow, over the fore-arm, then on the sound clavicle, between the hand and the neck, instead of passing it under the armpit as before; after which he passes it downwards behind the thorax, towards the elbow, bringing it again on the fore arm and clavicle, and making thus three or four diagonal turns. After this the bandage is not again passed under the elbow, but it is passed two or three times from below upwards round the chest and the bent arm: the remaining part is expended by making a few turns like the first, fixed by two or three circular ones. The whole is fixed by pins, and secured by a napkin covering all. This bandage may remain a month or more without any displacement. A more simple contrivance is a belt, or band, passing round the body, and having in front a deep pouch for the elbow. When the belt is fixed, and the elbow placed in the pouch, the belt must be drawn forcibly upwards towards the clavicles, and fixed there by braces over

the shoulders, which are attached to the upper border of the pouch, as well as to the edges of the body belt.—*British and Foreign Med. Rev., from the Journ. Hebdom. de Méd.*, May 30, 1835.

DISEASES OF SILK-WORMS.

M. Bassi, in his work on this subject, gives an account of a malady called the *muscardine*, to which the silk-worm is subject. It is the result of the growth of a vegetable substance (a moss, the *Botrytis bassiana*), the germ of which enters the body of the worm, kills it, and then appears on the surface in the shape of a whitish efflorescence. This disease, according to M Bassi, is not epidemic, but contagious; for it is communicable, by contact and inoculation, to other silk-worms and different kinds of moths. The knowledge of the cause and effects of the malady has led the author to a rational mode of treatment.—*Gaz. Medicale.*

TINCTURE OF COPAIBA.

A correspondent describes the following as "the least nauseous, and most available form for administering the balsam of copaiba:—Take twelve ounces of copaiba, and six of calcined magnesia, rub together, and then digest in a pint of proof spirit; filter, and add half an ounce of the spirit of nitrous ether. Of this a drachm two or three times a day, gradually increased to half an ounce at a time, will prove a sufficient dose. The tincture, when first made, is transparent and colourless, but assumes an orange tint on keeping."

THE LATE MR. MILLARD.

(From a Correspondent.)

It is with much regret we announce the decease of Mr. Millard, the late Demonstrator of Anatomy at the Webb-Street School, who died of phthisis at his house in Abingdon-Street, on Saturday the 7th instant, in the twenty seventh year of his age. He was the second son of the Rev. C. F. Millard, of Norwich, in which city he commenced his professional career, under the auspices of Mr. Crosse. Although young in years, Mr. Millard had acquired great celebrity as a teacher; and it is due to his character to state, that the honourable station to which he had attained was the result of no fortuitous events, but the just reward of talents well directed in the acquisition of professional knowledge, and of integrity of conduct conspicuously evinced in all the relations of private life. Thoroughly master of the subject he had undertaken to teach, and possessing acquirements of a superior order, he was distinguished not only by a degree of industry which has been rarely excelled, but especially by the very lucid and yet comprehensive manner in which he conveyed to his hearers the details of even the most intricate branches of human anatomy. The high estimation in which Mr. Millard was held as a teacher, was some time since evinced by his pupils presenting him with a lasting memorial of their grateful respect.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

May 12, 1836.

John Yates Rutter, Devonport.
Charles Malton.
John Gaskarth, Kendal.
William Baillie, Colchis Estate, Jamaica.
Thomas Robinson Mitchell, Leicester.
John Williams, St. Agnes, Cornwall.
Thomas William Ransom, Stowmarket.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *May* 10, 1836.

Abscess	2	Hooping Cough	7
Age and Debility	45	Inflammation	23
Apoplexy	10	Bowels & Stomach	2
Asthma	10	Insanity	1
Cancer	1	Jaundice	1
Consumption	48	Liver, diseased	5
Convulsions	26	Locked Jaw	1
Croup	1	Measles	5
Dentition or Teething	2	Mortification	4
Dropsy	17	Paralysis	3
Dropsy on the Brain	13	Small-pox	11
Dropsy on the Chest	1	Tumor	3
Fever	8	Unknown Causes	2
Fever, Scarlet	8		
Heart, diseased	2	Casualties	6

Increase of Burials, as compared with the preceding week . . } 29

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

May, 1836.	Thermometer.		Barometer.	
Thursday . 5	from 36	to 49	29 64	to 29·80
Friday . . 6	34	57	29·96	30·13
Saturday . 7	32	55	30 17	30 20
Sunday . . 8	37	59	30·19	30·16
Monday . . 9	38	50	30·15	30·12
Tuesday . . 10	35	59	30·12	Stat.
Wednesday 11	25	68	30·12	30·07

Prevailing winds, N. by E. and W. by S.

Generally clear, except the 5th and morning of the 8th: raining all the morning of the 5th.

Rain fallen, ·8 of an inch.

Charles Henry Adams.

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, MAY 21, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XXXIV.

THERE is a preparation in the London Pharmacopœia termed *precipitated sulphuret of antimony*, which I propose now to examine; but to explain its nature we must take notice of two other compounds closely related to it, namely, *golden sulphuret of antimony* and *kermes mineral*.

Precipitated Sulphuret of Antimony.

History.—Basil Valentine was acquainted with the mode of making precipitated sulphuret of antimony; and, doubtless, must have also known the substance now called *kermes mineral*, though no mention is made of it in his writings. Glauber, in 1658, and Lemery, in 1707, are both said to have discovered the latter substance, but I think it hardly possible for Basil Valentine to have been unacquainted with it.

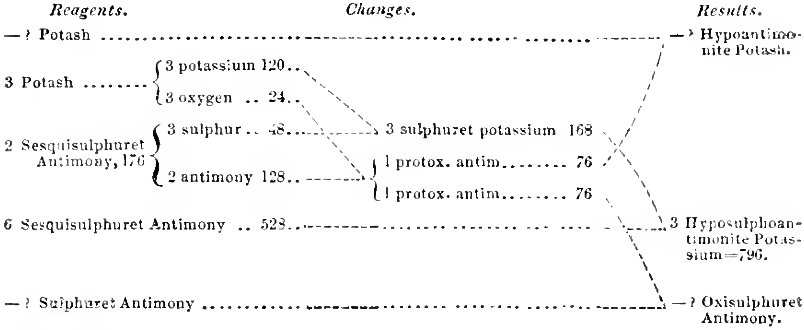
Native state.—There is a mineral called *red antimony*, or *native kermes*, and which is found in Saxony and other places; it is either identical with, or analogous to, one of the present preparations. Rose states its composition to be—

1 atom protoxide antimony	76
2 atoms sesquisulphuret antimony	176
	252

Preparation.—If black sesquisulphuret of antimony be boiled in a solution of caustic potash, a yellowish liquid and a yellowish grey residuum are obtained. The filtered liquor deposits, on cooling, a reddish powder, called *kermes mineral*. If this be separated by filtering, the mother liquor yields, on the addition of an acid, an orange red powder, called the *golden sulphuret of antimony* (*antimonii sulphuretum aurutum*). If the acid be added to the liquid before the kermes mineral has deposited, we obtain the *antimonii sulphuretum præcipitatum* of the Pharmacopœia.

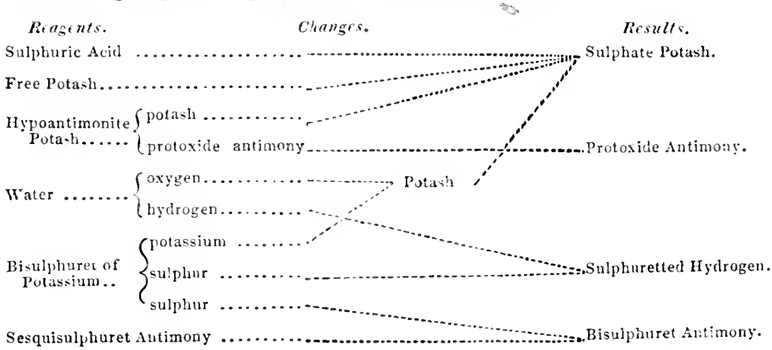
The *theory* of the process is very complicated. From the experiments of Berzelius it appears, that when sesquisulphuret of antimony is boiled with caustic potash, a portion of each of these bodies mutually reacts and produces sulphuret of potassium and protoxide of antimony. Each of these newly formed bodies unites with separate portions of sesquisulphuret of antimony to form two new compounds, namely, *hyposulphoantimonite of potassium*, and an *oxisulphuret of antimony*. Part of the protoxide also unites with some potash, forming a *hypoantimonite of potash*. The following diagram will illustrate these changes:—[*See top of next page.*]

I would remark on this diagram, that the quantity of sesquisulphuret of antimony, with which the sulphuret of potassium combines, varies with the temperature of the liquid. The quantity assigned in the diagram, is, perhaps, the maximum; it is that given by Berzelius as the composition of an antimonial sulphur salt. I am acquainted with no definite hypoantimonite of potash, and, therefore, am unable to fix the quantity of potash which combines with the protoxide of antimony, but it probably varies. Part of this hypoantimonite precipitates, part remains in solution. As the liquid cools, a portion of the sesquisulphuret of antimony which had been held in solution by the sulphuret of potas-



sium, deposits, and, mixing with the precipitated hypoantimonite of potash, constitutes *kermes mineral.*

The liquid from which kermes mineral has separated, contains, in solution, hypoantimonite of potash, and the hyposulphoantimonite of potassium. This last salt, by exposure to the air, undergoes a change; the sulphuret of potassium being converted wholly or partially into bisulphuret, while a little free potash is formed. If now sulphuric acid be added, it unites with this free potash, and with the potash of the hypoantimonite, forming sulphate of potash. Assisted by the elements of water it also decomposes the bisulphuret of potassium, forming sulphate of potash, disengaging sulphuretted hydrogen, and setting free some sulphur. The sesquisulphuret of antimony which was in solution is precipitated, and, at the moment of precipitation, unites with the free sulphur to form bisulphuret of antimony, or the *golden sulphuret of antimony.* The protoxide of antimony of the above mentioned decomposed hypoantimonite, is also converted into an antimonial sulphuret by the sulphuretted hydrogen, separated from the bisulphuret of potassium by the acid. In the following diagram, intended to illustrate some of these changes, I have assumed that all the sulphuret of potassium has been converted into bisulphuret by the oxygen of the air.



Thus, then, I have endeavoured to explain, as briefly as the circumstances allow, the phenomena observed in the manufacture of kermes mineral, and the golden sulphuret. Now, what are the changes in making the *precipitated sulphuret of antimony* of the Pharmacopœia? Evidently they must be a combination of those for making kermes mineral and the golden sulphuret. By boiling the sesquisulphuret of antimony with caustic potash, the phenomena must be the same as described and illustrated by the first diagram. When sulphuric acid is added, we shall obtain sulphate of potash in solution, sulphuretted hydrogen gas will be evolved, and sesquisulphuret of antimony, mixed probably with some protoxide, will be precipitated.

Composition.—No analysis has been made of the precipitated sulphuret of antimony. Various analyses of kermes mineral, and of the golden sulphuret of antimony, are frequently quoted as being analyses of this preparation. These three preparations differ from each other, though each, probably, is liable to some variation.

1. *Kermes mineral* may be regarded as consisting essentially of the *sesquisulphuret of antimony*, but mixed with the *hypoantimonite of potash*.

According to Buchner, kermes mineral, when deprived of its hygroscopic water by drying, consists of—

2 atoms sesquisulphuret antimony	176
1 atom protoxide antimony	76
1 atom water	9
	261

In this analysis you will observe that he omits all notice of the potash, which, according to Berzelius, is in combination with the protoxide of antimony. M. Henry, Jun., has also analysed kermes mineral, and he obtained the same relative proportions of sesquisulphuret and oxide of antimony. Buchner thinks, that in the above preparation the sesquisulphuret performs the function of an acid (which he terms the *stibiothionic acid*) and that the protoxide of antimony is the base. So that, according to his notions, kermes mineral is the *hydrated stibiothionate of antimony*.

2. *Golden sulphuret* contains more sulphur. According to the time the liquid has been exposed to the air before the acid is added, it may contain more or less *bisulphuret of antimony*, or even the *persulphuret*. It contains no potash, but usually some *protoxide of antimony*.

Thenard, some years since, analysed this preparation; the following are his results:—

Sulphur	12·00
Sulphuretted hydrogen ..	17·87
Protoxide antimony	68·30
Loss	1·83
	100·00

Now, if we assume that the hydrogen of the sulphuretted hydrogen was obtained by the decomposition of water, the analysis would stand thus:—

Persulphuret antimony ..	72·874
Protoxide antimony	15·046
Water	9·460
Sulphur	0·790
Loss	1·830
	100·000

This is about $3\frac{1}{2}$ atoms persulphuret of antimony to 1 atom of the protoxide.

3. *Precipitated sulphuret of antimony* must consist principally of the *sesquisulphuret*, with, perhaps, a little of the *bisulphuret* and *protoxide of antimony*. It can contain no potash.

Characteristics.—These three preparations are known by their more or less reddish colour, and by yielding sulphuretted hydrogen and chloride of antimony when digested in hydrochloric acid.

Physiological effects.—The general operation of these three preparations is similar, though probably somewhat different in degree. The effects they produce are analogous to those already detailed when speaking of tartar emetic, the action of which is, however, much more certain, on account of its composition being definite. In *large doses* these preparations act as irritant poisons, producing gastro-enteritis, indicated by pain, vomiting, purging, &c. In more *moderate doses* they excite nausea and vomiting, and might be employed for this purpose in the absence of tartar emetic, or other more certain emetics. In *smaller* doses they are said to be sudorific, expectorant, and alterative. Rayer states that no obvious effects were produced by the application of one or two drachms of either kermes mineral, or the golden sulphuret, to a wound made in the thigh of a dog. He states also, that two of his pupils, Dr. Bisson and M. Raisin, never experienced from the use of kermes mineral on themselves, sweating, cough, or any other symptom indicating its action on the skin or respiratory organs. Rayer, however, admits he has seen sweating produced by the golden sulphuret.

These different preparations owe their activity principally or wholly to the protoxide of antimony which they contain. Rayer states that the golden sulphuret is less active than kermes mineral; doubtless because it contains less protoxide of antimony. The precipitated sulphuret of the London Pharmacopœia may be regarded as of intermediate strength.

Uses.—As *emetics* we rarely or never employ them.

As *antiphlogistics*, or *contra-stimulants*, they have been used in the same cases as tartar emetic. Thus kermes mineral has been recommended in inflammatory affections of the respiratory organs; for example, laryngitis, bronchitis, and pneumonia; though some refer the beneficial influence said to have been observed in these diseases, to the *expectorant* effects. They have also been employed in rheumatism, as *sudorifics*. The precipitated sulphuret of antimony is principally employed in this country as an *alterative* in chronic diseases, particularly cutaneous affections, glandular enlargements, secondary syphilis, and diseases of the liver.

Administration.—As an *alterative*, the precipitated sulphuret is usually exhibited in combination with mercury, as in the *pilulæ hydrargyri submuriatis compositæ*, Ph. Lond. (usually denominated *Plummer's pill*,) and

which consists of calomel, precipitated sulphuret of antimony, and guaiacum. Four grains of this contain about one grain of calomel, and one of the sulphuret; and the usual dose, as an alterative, is from 5 to 10 grains. Kermes mineral, in doses of from 4 to 8 grains, usually vomits and purges; the golden sulphuret is not quite so active.

Proto-chloride of Antimony.

History and synonymes.—The preparation was known to Basil Valentine. It has had various appellations, such as *oil* or *butter of antimony*, *muriate of antimony*, &c.

Preparation.—The butter of antimony of the shops is prepared by dissolving crude antimony (that is, fused native black sulphuret) in muriatic acid. The results of this operation are the proto or sesquichloride of antimony and sulphuretted hydrogen.

Re-agents.	Results.
$\underline{\overset{\prime\prime\prime}{S}b}$	$3\,\dot{H}$
$3\,(H\;Chl)$	$\underline{Sb}\;3\,Chl$

Properties.—As usually met with in the shops, it is a deep red liquid, which fumes in the air (in consequence of an excess of acid). Its specific gravity varies from 1·2 to 1·5.

Composition.—It is essentially composed of

1 atom antimony	..	= 64
$1\frac{1}{2}$ atoms chlorine	..	= 54
		118

Hence its symbol is $\underline{\overset{\prime\prime\prime}{S}b}$

The liquid chloride of the shops contains water, and usually excess of muriatic acid. It may contain, also, impurities derived either from the sulphuret, or from the acid: thus it frequently contains chloride of iron. Serullas says he never found arsenic in it.

Characteristics.—When water is added to it, a yellowish-white precipitate, called the *powder of Algaroth*, (or *mercury of life*) is formed. Sulphuretted hydrogen, or the hydro sulphurets, produce an orange-red precipitate of the sesquisulphuret of antimony. The alkalies throw down the protoxide of this metal. Nitrate of silver occasions a white precipitate of the chloride of silver, and oxide of antimony: the latter may be removed from the chloride of silver, by digestion in muriatic acid. In some respects this liquid agrees with liquid muriatic acid; thus, in its acid and corrosive properties, and in its fuming in the air: the fumes redden litmus paper, and are increased by the presence of ammonia.

Physiological effects.—Butter of antimony of the shops is a powerful caustic; and, therefore, if swallowed, would act as a corrosive poison, though I am not acquainted with any instances in which it has been used as a poison in the human subject.

Uses.—In medicine it is employed as a caustic, and to yield the powder of Algaroth, which is sometimes used in the manufacture of tartar emetic. As it is decomposed by dilution, it is never administered internally. Like the mineral acids, its liquidity renders it, in some cases, objectionable as a caustic, but in others advantageous. It usually acts without very much pain or inflammation; and after the separation of the eschar, a clean healthy surface is generally observed. It is sometimes used as an application to bites of rabid animals, or of venomous snakes, its liquidity enabling it to penetrate into all parts of the wound. It is applied to ulcers to repress excessive granulations. Richter and Beer have employed it in that form of enlarged and opaque condition of the cornea called staphyloma, with the view of improving the form of the cornea; for it is impossible to restore its transparency. The mode of using it is this:—dip a camel's hair pencil, or a point of lint, into the chloride, and apply to the part until you observe a whitish appearance: then immediately wash it off (by means of another larger pencil) with milk, and afterwards with milk and water.

Antidotes.—In a case of poisoning by this liquid, you should immediately administer alkaline substances (as chalk, magnesia, or soap) to neutralize the excess of acid; in other words, adopt the treatment I have already directed for poisoning by the strong acids. Afterwards, with the view of neutralizing the effect of the oxide of antimony which would be separated in the stomach, administer astringents as in the case of poisoning by tartar emetic. The gastro-intestinal inflammation should be combatted by the usual means.

The next metal which I shall notice is

BISMUTH.

The only pharmacological preparation of this, is the

Subnitrate of Bismuth.

History and synonymes.—This compound was first prepared by Lemery. It has had various appellations, such as *pearl* or *flake white*, *magistery of bismuth*, *Spanish white*, and *tetarto-nitrate of bismuth* (the name given it by Dr. Thomson).

Preparation.—It is prepared by dissolving one ounce of bismuth in a fluid ounce and a half of nitric acid, to which six drachms of water have been added. After the solution has been filtered, about three pints of distilled water are to be added: the subnitrate precipitates, and is to be collected, washed, and dried.

Part of the nitric acid oxidizes the bismuth, binoxide of nitrogen escaping. The oxide thus formed unites with some undecomposed nitric acid, to form nitrate of bismuth.

Reagents.	Results.
$4\ \overset{\cdot\cdot\cdot\cdot\cdot}{N}$	$\ddot{N}$
$3\ Bi$	$3\ (\dot{Bi}\ \overset{\cdot\cdot\cdot\cdot\cdot}{N})$

When water is poured into the solution of nitrate of bismuth, two other salts of bismuth are formed—namely, a soluble supersalt and an insoluble subsalt.

Reagents.	Results.
$5\ (\dot{Bi}\ \overset{\cdot\cdot\cdot\cdot\cdot}{N})$	$\dot{Bi}\ 4\ \overset{\cdot\cdot\cdot\cdot\cdot}{N}$
	$4\ \dot{B}\ \overset{\cdot\cdot\cdot\cdot\cdot}{N}$

Properties.—It is a dull, white, inodorous, tasteless powder, which consists of very fine silky needles. It is nearly insoluble in water, but is readily dissolved by nitric acid. By exposure to light it becomes greyish.

Composition.— According to Grouvelle, the silky needles of this salt consist of

1 atom nitric acid	....	54
4 atoms oxide of bismuth	$(80\times 4) =$	320
2 atoms water	$(9\times 2) =$	18
		292

The formula for this compound is, therefore,

$$4\ \dot{Bi}\ \overset{\cdot\cdot\cdot\cdot\cdot}{N}\ 2\ \dot{H}$$

Characteristics.— Sulphuretted hydrogen, or the hydrosulphurets, blacken it, by forming the sulphuret of bismuth. It dissolves in nitric acid without effervescence, by which it is easily distinguished from carbonate of lead. Heated on charcoal by the blowpipe flame, it gives out nitrous acid, and yields the yellow oxide of bismuth; and by a continuance of the heat the oxide is reduced, globules of metallic bismuth being obtained, which may be readily distinguished from globules of lead by their brittleness; for when struck sharply by a hammer on an anvil, they fly to pieces: from antimony they are distinguished by their solubility in nitric acid.

Physiological effects. — When applied to wounds, or taken in *excessive quantity* into the stomach, it acts as a powerful local irritant, and, in the latter case, gives rise to all the symptoms indicative of gastrointestinal inflammation, and which I have so frequently mentioned, in speaking of other irritant poisons. After death, the usual appearances of inflammation and its consequences are observed. I am only acquainted with one case in which it proved fatal in the human subject; the quantity taken was two drachms, and death occurred on the ninth day. I may just notice, that, in addition to the usual symptoms of gastro-enteritis, there was disorder of the nervous system, indicated by the cramps of the hands and feet, the disordered vision, and delirium. It is deserving also of remark, that there were present difficulty of breathing, and salivation. Post-mortem examination showed inflammation throughout the alimentary canal; the spinal vessels were gorged with blood, particularly towards the cauda equina; there was fluid in the cerebral ventricles; and the inner surface of both ventricles of the heart was very red.

If taken in *large doses as a medicine,* it disorders the digestive organs, occasioning pain, vomiting, purging, &c.; and sometimes it affects the nervous system, producing giddiness, insensibility, cramps of the extremities, &c. In *small doses* it acts locally as an astringent, diminishing secretion. On account of the frequent relief given by it in painful affections of the stomach, it is supposed to act on the nerves of this viscus as a sedative. It has also been denominated tonic and antispasmodic. Vogt says, that when used as a cosmetic, it has produced a spasmodic trembling of the muscles of the face, ending in paralysis. We have not at present sufficient evidence to determine whether this medicine affects the general system by absorption or through the intervention of the nervous system: its insolubility has led to the conclusion that it does not become absorbed.

Use.—It has been principally employed in those chronic affections of the stomach which are unaccompanied with any organic disease, but which apparently depend on some disordered condition of the nerves of this viscus; and hence the efficacy of the remedy is referred to its supposed action on these parts. It has been particularly used and recommended to relieve gastrodynia—to allay sickness and vomiting, and as a remedy for the water-brash. It has also been employed in intermittent fever, in spasmodic asthma, &c. Hahnemann has recommended a portion to be introduced into a hollow tooth, to allay tooth-ache. I have used it, with

advantage, in the form of ointment, applied to the septum nasi, in ulceration of this part, and as a local remedy in chronic skin diseases.

Administration.—The usual dose of this remedy is from five grains to a scruple, exhibited in the form of a pill. The ointment which I have just referred to was composed of one drachm of the subnitrate, and half an ounce of spermaceti ointment.

Having now concluded all the remarks I think it necessary to make respecting the electro-negative metals and their compounds, I proceed to the third and last division, containing those metals which are *electro-positive* in saline combinations, but whose oxides neither form alkalies nor earths. The first of this division which I shall notice, is

TIN.

The only pharmacological preparation of this metal is

Powdered Tin.

Tin was employed by Paracelsus as a vermifuge; as also against dropsy and jaundice. Alston, however, may be regarded as having introduced it, as an anthelmintic, in modern practice.

Preparation.—Tin is used in medicine in two states—either as *filings* (*limatura stanni*), or *granulated* (*stannum granulatum, pulvis seu scobs stanni*). Of the preparations of the filings I need say nothing. Granulated or powdered tin may be prepared by melting the metal in an iron ladle, and stirring with an iron pestle; or pouring it into a wooden box, rubbed on the inside with chalk, and shaking it until cold. Another method is, to melt tin in an iron pot, and stir with a birch-broom. The finer are then to be separated from the coarser particles, by a sieve. There are five kinds of tin met with in commerce—namely, two imported from the East (*Malacca tin*, met with in quadrangular pyramids, and *Banca tin*), two obtained in Cornwall—namely, *grain tin* and *block tin* (the latter, when purified, is called *refined block tin*); and, lastly, an impure *German tin* is also met with. Grain tin, as being the purest kind of Cornish tin, should be employed for granulation.

Properties.—Tin, in its massive form, is a yellowish-white metal, emitting a peculiar odour when rubbed or handled. When quite pure, its specific gravity is 7·28 or 7·29. It melts at 442° Fahr.; its atomic weight is 58.

Powdered or *granulated tin* has but little brilliancy, and probably is slightly oxidized.

Characteristics.—Dissolved in strong muriatic acid, we obtain a protochloride of tin, which is readily recognized, first by sulphuretted hydrogen causing with it a brown precipitate of the protosulphuret of tin; and, secondly, by the chloride of gold, which occasions the formation of the purple powder of Cassius. If the protochloride of tin be boiled with a little nitric acid, it is converted into the perchloride, which may be recognized by the yellow precipitate occasioned with sulphuretted hydrogen.

Physiological effects.—In the mass, tin has no operation on the body, except that arising from its form and weight. Powdered tin is not known to produce any disorder in the functions of the body. It appears, however, that acid, fatty, saline, and even albuminous substances, may occasion colic and vomiting, by having remained for some time in the vessels.

Uses.—Powdered tin has been employed with great success by various eminent practitioners, as a vermifuge, particularly in tape-worm. Dr. Alston explains its operation on mechanical principles: he supposes the powder of tin gets betwixt the worms and the inner coat of the alimentary canal, and causes them to quit their hold, so that purgatives easily carry them away with the fæces. It has, however, been asserted that water in which tin has been boiled is anthelmintic, at least so says Pitcairn and Pietsch; wine which has been digested in a tin vessel is also said to be noxious to worms. If these statements be true, the before-mentioned mechanical explanation is inadmissible. Some have, therefore, supposed that the efficacy must depend on the tin becoming oxidized in the alimentary canal; others have fancied that arsenic, which is frequently found in tin, is the active agent; while, lastly, some have imagined the metal, by its action on the fluids of the canal, generated hydrogen, or sulphuretted hydrogen, which destroyed these parasites.

Monro, Fothergill, and Richter, have used powdered tin in epilepsy, and, as is stated, with advantage.

Administration.—The usual mode of exhibiting it is mixed with treacle: the dose stated in books is one or two drachms, but Alston gave much larger quantities; his mode of employing it as a vermifuge was the following: — The patient was well purged with senna, and on the following morning *one ounce* of tin powder was given in four ounces of treacle; on each of the two following days half this quantity was taken, and then the patient again purged. However, tin powder is certainly much inferior to oil of turpentine as a remedy for tape worm.

I proceed now to notice another metal of this division, namely,

ZINC, OR SPELTRE.

Several preparations of this mineral are employed in medicine—namely, the *oxide*, the *chloride*, the *sulphate*, the *acetate*, and *cyanuret*. Of these I shall first notice the

Oxide of Zinc.

History and synonymes.—Hellot, in 1735, is said to have first prepared this oxide in the pure state, by burning the metal. It has received various appellations, some of a fantastic nature, such as *nihil album*, *lana philosophica*, *pompholyx*, *flowers of zinc*, &c.

Native state.—The mineral called *red zinc*, found in America, is a compound of oxide of zinc, and sesquioxide of manganese (Thomson says 7 atoms of the first to 1 of the second.) *Voltzinc*, or the oxisulphuret of zinc, is composed of sulphuret with some oxide of zinc. Oxide of zinc is also found combined with carbonic, silicic, and sulphuric acids.

Preparation.—It is readily prepared by precipitation from the sulphate of zinc. Any of the alkalies will do as precipitants, but in the London Pharmacopœia ammonia is ordered. The alkali employed abstracts the sulphuric acid from the sulphate, setting at liberty the oxide. Care must be taken not to use too much alkali, which would redissolve the oxide; for this oxide is capable of performing the function of an acid when placed in contact with the strong alkalies; that is, of combining with them.

Reagents.	Results.
$\dot{Zi}\,\dddot{S}$	Am. $\dddot{S}$
Am.	$\dot{Zi}$.

This oxide may also be procured by the combustion of the metal.

Properties.—As ordinarily met with it is a light flocculent white powder; but when heated becomes yellow. It is odourless and tasteless: when heated it fuses, and forms a yellow kind of glass. It is insoluble in water, but very soluble both in acids and alkalies: with the first it forms the *oxisalts of zinc*; with the latter, a class of compounds which may be termed *zincates*. It is easily reduced to the metallic state, by heating it in contact with carbonaceous compounds.

Composition.—Oxide of zinc is composed of—

1 atom of zinc	=	34
1 atom of oxygen ..	=	8
		42

Its symbol, therefore, is $\dot{Zi}$.

As thrown down from the salts of zinc by an alkali, it is a hydrate, and consists of—

1 atom oxide zinc ..	=	42
1 atom water	=	9
		51

Its symbol is $\dot{Zi}\,\dot{H}$.

Characteristics.—If dissolved in an acid the zincic solution has the following characters:—Ferrocyanuret of potassium occasions a white gelatinous precipitate (ferrocyanuret of zinc); sulphuretted hydrogen (if the zincic solution be neutral) occasions a white precipitate (sulphuret of zinc). The alkalies produce a white precipitate (the hydrated oxide), soluble in an excess of the precipitant.

Physiological effects.—The effects of oxide of zinc on the body are not very obvious. Orfila tried it on dogs in doses of from three to six drachms, and the only effect noticed was vomiting; so that it cannot be termed a poison. Applied to ulcerated surfaces it is regarded as desiccative and astringent. Taken internally, in large doses it is emetic; in smaller doses it is termed tonic and sedative, and is supposed, by continued use, to exert some influence over the nervous system, though this is not very obvious. It is, in fact, one of the feeblest of the zincic preparations.

Uses.—Used as a *dusting powder*, it is serviceable from its mild absorbent and desiccative properties, in impetiginous and other chronic diseases of the skin attended with a copious discharge,—to allay or prevent excoriation in children and bedridden persons,—to diminish the discharge and allay pain in ulcers, and sometimes as an application to the eyelids in affections of those parts accompanied with much discharge, &c. Frequently the oxide is *diffused through water* or a mucilaginous solution, and used in this way as a collyrium in affections of the eyelids. Lastly, an *ointment of zinc* is employed as a mild cooling desiccative application, in various skin diseases, particularly those accompanied with discharge, as impetigo and porrigo; after extensive burns or irritant applications (as blisters, sinapisms, &c.); to painful ulcers, especially those attended with much discharge; to the eyelids, in chronic inflammation of these parts.

Internally oxide of zinc has been principally employed in affections of the nervous system; for example, chorea, epilepsy, catalepsy, hysteria, neuralgia, &c. But used in this way it is a remedy of little or no value. Very recently a case has been published by M. Bonifacio Chiovitti, in a Neapolitan journal, in which the oxide of zinc was advantageously administered to a mare poisoned by extract of belladonna.

Administration.—As an *external* application a drachm or two may be diffused through six or eight ounces of water, or thin mucilage; or we may use it in the form of ointment, composed of one drachm of the oxide to six drachms of lard. *Internally* it is given in doses of from two to eight or ten grains, either in the form of pill, or mixed up with treacle, or some thick substance of this kind.

Tutty.

Tutty, tutia, or *tuthia,* called also *cadmia factita,* or *cadmia fornacum,* is an *impure oxide of zinc,* found in the chimney of the furnace in which zinc ores are roasted, or in which lead ores containing zinc are smelted. When levigated it forms the *prepared impure oxide of zinc,* or *prepared tutty* of the shops. It is made into ointment, which is used in the same cases as the zinc ointment already mentioned.

Chloride of Zinc.

History and synonymes.— *Chloride, muriate,* or *butter of zinc* (for by all of these names has it been designated), has been known for a long period. It was first, I believe, introduced into medicine by Papenguth, and subsequently has been recommended by Professor Hauke, of Breslau, and by Dr. Canquoin, of Paris. A full account of the use of it by the latter has been given by Mr. Ure, in the 17th volume of the MEDICAL GAZETTE.

Preparation.—The easiest and cheapest method of obtaining it is by dissolving zinc, or its oxide, in muriatic acid, evaporating to dryness, and fusing in a glass vessel with a narrow mouth, as a Florence flask.

Properties.—It is a whitish grey, semi-transparent mass, having the softness of wax. It is fusible, and at a strong heat it may be sublimed and crystallized in needles; it is very deliquescent; it unites with both albumen and gelatine to form difficultly soluble compounds, and hence it occasions precipitates with albuminous and gelatinous liquids.

Composition.—It is composed of—

1 atom chlorine	36
1 atom zinc	34
	70

Characteristics. — Dissolved in water it may be recognized to be a chloride or muriatic salt by nitrate of silver, as already mentioned when speaking of muriatic acid. That zinc is the base of the salt may be shewn by the tests mentioned for the oxide of zinc.

Physiological effects.—Its *local* action on living tissues is that of a caustic, or escharotic, depending partly, as Mr. Ure thinks, on its affinity for albumen and gelatine: so that when placed in contact with living parts into whose composition these organic compounds enter, it is supposed that the chloride exercising its affinity, first destroys the life of the parts, and then unites with the albuminous and gelatinous matters present, and forms thus an eschar. Other chemical changes of a comparatively unimportant nature are also effected: thus various salts found in the solids or liquids of the part may be decomposed. For example, when the chloride is applied to a cancerous sore, it will decompose the carbonate, and hydrosulphuret of ammonia is said to be found in the secretion of the sore. The effects produced by the application of chloride of zinc are the following:—soon after it has been applied, a sensation of warmth is felt in the part, quickly followed by violent burning pain, which continues for 7 or 8 hours; that is, until the parts in contact with the chloride are dead. If the part be now examined, a white eschar is observed, which usually separates in from 8 to 12 days. Unless used in the neighbourhood of loose cellular tissue, there is rarely much swelling.

As a caustic, chloride of zinc is not inferior in power to chloride of antimony; nay, Vogt says, it appears to him to be more powerful, and to penetrate deeper. It decomposes the organic tissues as quickly as the nitrate of silver, but excites more burning, and for a longer time, owing to its action extending to parts placed more deeply, for it is well known that the operation of the nitrate is confined to superficial parts. Both Vogt and Canquoin agree that chloride of zinc, besides corroding the parts with which it is in contact, exercises an influence over the vital actions of neighbouring parts. To this circumstance is owing, in great part, the efficacy of the chloride in various diseases in which it has been applied, (cancer, for example) and the healthy appearance of the sore after the separation of the eschar. There is no danger of any constitutional disorder arising from the absorption of the poison, as is the case with the arsenical and mercurial caustics.

Taken *internally,* in *large doses,* it acts as an irritant or caustic poison, and affects the nervous system. Thus it produces a burning sensation in the stomach, nausea, vomiting, anxiety, short breathing, small quick pulse, cold sweats, fainting, and convulsions. Taken in *very small doses,* no obvious effects are produced, except sometimes the amelioration of certain diseases. It is supposed in these cases to influence the nervous system.

Uses.—*Internally* chloride of zinc has been given in small but gradually increased doses in scrofula, epilepsy, chorea,

and (in combination with prussic acid) in neuralgia of the face. Commonly, however, it is employed *externally*: thus Papenguth used it as a lotion in fistulous ulcers of a scrofulous nature. As a *caustic* it has been applied by Professor Hanke and Dr. Canquoin in various cases: thus it has been used to produce an issue, to destroy nævi materni, and as an application to parts affected with malignant diseases, such as fungus hæmatodes and cancer, or to other intractable forms of disease, such as old syphilitic or scrofulous ulcers. The benefit is supposed not to depend merely on the escharotic effect, but on the chloride inducing a new action in the surrounding parts.

Administration. — *Internally* it may be given in doses of one or two grains. Hufeland recommends it to be taken dissolved in æther; his formula for the *æther zinci*, as it is called, is the following:—

> ℞ Zinci Chlor. ʒss.; Alcoholis, ʒj.; Ætheris Sulph. ʒij. Post aliquot dies decanta.

The dose of this solution is from four to eight drops, taken twice daily.

Externally it has been used as a *lotion*, composed of two grains of the chloride and an ounce of water; or in the form of *paste*. This may be composed of one part chloride of zinc, and from two to four parts of wheaten flour.

Sulphate of Zinc.

History and synonymes.—This salt is said by Schwartz to have been known towards the end of the 13th, or at the commencement of the 14th century; but Beckmann affirms it was not known before the middle of the 16th century. It has had various names, as *white vitriol*, and *Gilla Theophrasti*.

Native state.—This salt occurs native at Rammelsberg, near Goslar, in the Harz; at Holywell, in Flintshire, and other places.

Preparation.—It is readily prepared by dissolving zinc in dilute sulphuric acid. The solution is to be filtered, evaporated, and crystallized. In this process the water is decomposed, its hydrogen escapes, while the oxygen unites with the zinc; and the oxide thus formed combines with some sulphuric acid to form the sulphate.

Reagents.	Results.
$\dot{H}$	H
Zi	$\dot{Zi}\,\dddot{S}$
$\dddot{S}$	

By roasting ores containing native sulphuret of zinc an impure sulphate is obtained, usually distinguished among druggists by the name of *white vitriol*, a term which they confine to this commoner kind of sulphate. This process yields an impure salt, which generally contains iron, or even copper or lead.

Properties.—The primary form of the crystals of this salt is the right rhombic prism: they are transparent and colourless, and have a metallic astringent taste. They are soluble in $2\frac{88}{100}$ times their weight of cold water, and less than their own weight of boiling water.

Composition.—This salt is composed of

1 atom oxide zinc	42
1 atom sulphuric acid ..	40
7 atoms water .. $9 \times 7 =$	63
	145

Its symbol is, $\dot{Zn}\ \dddot{S}\ 7\dot{H}$

Characteristics.—That this salt is a sulphate, is proved by the action of chloride of barium on it; a white precipitate is produced, insoluble in nitric acid. In order to prove that the base of the salt is oxide of zinc, the tests already mentioned under the head of the oxide may be employed.

Physiological effects. — In *small repeated* doses, sulphate of zinc is accounted tonic; but it may be taken for a considerable time without any obvious effect on the functions of the body, as I have several times seen. It is presumed, however, that it influences the nervous system, and to this influence is attributed the benefit obtained in certain diseases. In *full doses* it excites speedy vomiting, without giving rise to the same degree of nausea produced by the antimonial emetics. Occasionally, when *very large* quantities have been swallowed, symptoms of poisoning have been observed—namely, vomiting, purging, coldness of the extremities, and fluttering of the pulse. The *local* effects of this salt are astringent.

Uses. — As an *emetic* it is used in cases of narcotic poisoning, partly on account of its speedy operation, and in part, also, on account of its producing comparatively little nausea. Whenever our object in exciting vomiting is merely the evacuation of the stomach, this is as good an emetic as can be employed; but when we wish to influence diseases by the impression made on the system, tartar emetic is preferable. In small doses (some say as a *tonic* or *antispasmodic*) it is used with occasional success in epilepsy, chorea, and ague. As an *astringent*, also, in discharges from the mucous membranes. Its principal use is as an *external* application,—as a collyrium in chronic ophthalmia, to diminish the discharge—as a wash to ulcers—or as an injection in gleet and leucorrhœa.

I have seen a solution of one drachm of the sulphate to an ounce of water used as an injection in gleet with the best effects.

Dose.—As an emetic, from grs. x. to grs. xx. are exhibited; as a tonic, from gr. j. to gr. v. As an external application, an aqueous solution is used of various strengths, from gr. j. and upwards, to the ounce of water.

Acetate of Zinc.

History and synonymes.—This salt was discovered by Glauber.

Preparation.—It may be procured by dissolving zinc or its oxide in acetic acid, and crystallizing the saturated solution. Or, it may be readily obtained by double decomposition: 145 grains of crystallized sulphate of zinc dissolved in water and added to 190 grains of the acetate of lead, in solution, will just produce 152 grains of sulphate of lead, which, being insoluble, precipitates, while 93 grains of the anhydrous acetate of zinc (equal to 156 grains of the crystallized acetate) will be left in solution.

Re-agents.	Results.
$\dot{Zi}\ \dddot{S}$	$\dot{Zi}\ \overline{A}$
$\dot{Pb}\ \overline{A}$	$\dot{Pb}\ \dddot{S}$

Properties.—The primary form of the crystals of this salt is the oblique rhombic prism. The salt has a bitter metallic taste, and dissolves readily in water.

Composition.—It consists of—

1 atom oxide zinc	42
1 atom acetic acid...........	51
7 atoms water 9×7	63
	156

Its formula, therefore, is—$\dot{Zi}\ \overline{A}\ 7\dot{H}$

Characteristics.—It carbonizes when heated: when sulphuric acid is added to the salt, it evolves acetic acid, which is easily recognised by its odour. These characters show it to be an acetate. That it is a zincic salt is proved by the tests mentioned for the oxide of zinc.

Physiological effects.—Its effects, when taken internally, are milder, though analogous to those produced by the sulphate. We have no evidence as yet, however, of its capability of acting as a poison, though if *very large* quantities were swallowed, it is not unlikely that gastro-enteritic irritation, or inflammation, might be brought on. Full, or even *large* doses, excite vomiting, and act slightly as purgatives. It appears also, that the continued use of *small doses* has no injurious effect on the constitution; but an effect is supposed to be produced on the nervous system, which is said to be serviceable in several diseases.

The local operation of the acetate of zinc is that of an astringent, more powerful than that of the oxide, but less so than that of the sulphate of zinc.

Uses.—It is rarely employed *internally*, but is applicable to those cases which are treated by the oxide or sulphate, since its power is intermediate. The dose of it is from 2 or 3 grains to 8 or 10 grains. It is much more frequently used as an *external* application, as a collyrium in ophthalmia, or as an injection in gleet and leucorrhœa. The strength of the solution may be two or three grains to the ounce of water, or much stronger than this.

Native Carbonate of Zinc.

History and native state.—*Lapis calaminaris* seems to have been known to the ancient Greeks, though they were unacquainted with its nature. Under this name are included several mineral species, such as anhydrous carbonate, hydrous dicarbonate, and silicate. That which is used in medicine is the *anhydrous carbonate*, which is found abundantly in several parts of this country, for example, the Mendip hills; Somersetshire, Derbyshire, Durham, &c.

Preparation.—Native anhydrous carbonate of zinc, called impure carbonate of zinc, or calamine, is first calcined, then powdered, and is afterwards reduced to a very fine powder by elutriation. In this state it constitutes the *calamina præparata* of the Pharmacopœia.

Properties.—Prepared calamine is met with in the shops in the form of a reddish yellow powder, or made up into little masses, and having an earthy appearance.

Composition.—The native anhydrous carbonate of zinc is composed, according to Mr. Smithson, of—

	Specimen from Somersetshire.	Specimen from Derbyshire.		
Carbonic acid	35·2	34·8	or	1 atom = 22
Oxide of zinc	64·8	65·2		1 atom = 40
	100·0	100·0		62

Physiological effects and uses.—It is a very mild agent, probably similar to the oxide of zinc in its operation. It is used externally as a dusting for children, and is a most excellent application for this purpose, there being no danger attending its use, as

in the case of the carbonate of lead, which is sometimes substituted. There is a very useful cerate (commonly termed *Turner's cerate*) made of half a pound prepared calamine, half a pound of yellow wax, and a pint of olive oil. It is called in the Pharmacopœia *ceratum calaminæ*, and is a most valuable cooling application after burns, scalds, or to ulcers or excoriations.

Dose.—From one to four grains.

Cyanuret of Zinc.

History.—This salt, called also *hydrocyanate of zinc*, has been introduced by the German physicians as a substitute for hydrocyanic acid.

Preparation.—To procure pure cyanuret of zinc, the best method is to add oxide of zinc to hydrocyanic acid.

Properties.—Cyanuret of zinc is a white powder, insoluble in water or alcohol.

Composition.—It consists of—

1 atom cyanogen	26
1 atom zinc	34
	60

Characters.—If a strong mineral acid be added, hydrocyanic acid is developed. That it is a zincic salt is determined by the tests mentioned for the oxide of zinc.

Physiological effects.—Its effects have not been well ascertained, but they have been supposed to be similar to hydrocyanic acid.

Uses.—It has been used principally in affections of the nervous system: thus epilepsy, hysteria, and chorea. It has also been employed in cardialgia and cramps of the stomach, and as an an anthelmintic.

Administration.—We may give from a quarter of a grain to a grain and a half three times a day.

REPORT ON THE MEDICAL INSTITUTIONS OF IRELAND.

By Wm. P. Borrett, M.D.
Assistant-Commissioner for inquiring into the state of the Irish poor.

(*Communicated by the Author.*)

PART I.—ON THE DISPENSARIES.

[Continued from p. 257.]

The Dispensaries are supported by voluntary contributions and by assessments upon the county, upon the principle of making private charity indispensable in order to obtain a great public grant. But however excellent in theory such a plan may appear to be, it has not succeeded well in practice.

Indeed, the collecting of private subscriptions seems generally to fail in Ireland. The higher orders, for the most part, enter but little into the feelings of the poor, and the appeal of suffering humanity to private benevolence is too often made in vain. There are, of course, many most exemplary acts of generosity on the part of the rich; but while there are some who invariably give, there are others who invariably refuse, and persons who have been employed to collect subscriptions for the support of charitable institutions, or in the times of distress, know full well those who will assist, and those who will not. It is hardly worth while, they will tell you, to apply to the latter class, so systematically and pertinaciously do they refuse all petitions, and yet they are frequently the persons best able to give. The medical gentlemen, who attend at the Dispensary at Tralee, give their services gratuitously, and yet the gentry will not subscribe money enough to pay for medicines. In almost a total absence of subscriptions last year the players kindly came forward, and offered the proceeds of a night's performance in aid of the charity. Thirteen pounds were thus raised, to which the Board of Health added ten, and then the Grand Jury were called upon to contribute a donation equal to the amount procured.

There is a like dearth of subscriptions towards the Fever-hospital and Infirmary at Tralee, which are almost entirely supported at the public expense. At Bantry, Kilworth, Kenmare, &c. &c. it was stated there were gentlemen possessed of 1000*l.* to 2000*l.* per annum, in the district, who refused to subscribe to the Dispensary, although its operations were crippled for want of funds. At Castletown Roche, the names of as many as fifteen persons were given, enjoying incomes from landed property in the neighbourhood, of 500*l.* to 5000*l.* per ann., who contributed nothing to the support of the Dispensary, but left their dependants to get relieved upon the orders of others. Even with actual subscribers, the contributions do not bear that proportion to their respective means and resources which might in fairness be expected from them. At Ballylongford there were eight large landed proprietors in the district, whose united subscriptions amounted only to twelve pounds. Men possessing some thousands a year subscribe but an annual guinea, as that sum entitles them to as many tickets as they want; while those who do not subscribe at all, insist upon the needlessness of becoming subscribers, when their dependents can easily procure tickets in some other quarter.

The above are not extraordinary in-

stances. The indisposition to subscribe is general; but it has its exceptions, as I have already remarked, and these sometimes very splendid ones. Nevertheless, the charitable intentions of the subscribers who contribute liberally for the support of the Dispensaries, are too often abused. Most of those who are living upon their estates, whether proper or improper objects, consider they have a right to be supplied with medical advice and medicine; so that, in such a case, more than the full worth is had for the money subscribed. Hence it is that virtually the public institutions are made subservient to private ends, by the very means which are ostensibly for the public interest.

Although it is forbid, on the one hand, to grant assistance from the public purse when there are no local private contributions, that assistance is made absolute, upon the other, on the amount of subscription being certified. The law, in its present state, affords an opportunity to any person, or number of persons, to get up a Dispensary, whether it be for his or their accomodation, or for that of the public. Whether it be paid by the medical man who wants an appointment, or by a gentleman who is desirous to establish a medical practitioner in the neighbourhood, to attend upon his own family or his tenants—if only a certain sum be raised by private resources, to be applied for the maintenance of a Dispensary, and its receipt be declared on oath, it is obligatory upon the grand jury to present a corresponding sum, or at least a sum proportionate to it. In the first case which is here supposed, the medical practitioner may or may not be a proper person; but any how it follows, that whatever may be the sum contributed from his own purse, or is above *boná fide* subscriptions, the county is assessed to the same amount, or nearly so, in violation of the statute. In the second case, it is probable the person so selected will be duly qualified; but whether competent or incompetent, in either case the formation of the institution may be unnecessary, from its proximity to a similar one: or again, even if necessary, there is no sufficient check to compel the medical officer to attend to his duty to the poor, especially when other than humane considerations have led to his appointment. Several instances are given in the course of these remarks, in which the relief of the sick poor seemed to be held of inferior moment; and others, again, in which it was grossly neglected. For these reasons it would seem that the principle is objectionable which makes the presentment *necessarily* consequent upon a certain sum being subscribed, as well as, in the first instance, to depend entirely upon it. With or without subscription, it should be granted if required, and only in such cases as required; and the power of subscribers to establish Dispensaries should be restricted. The next point for our consideration is the *amount* of the sum to be presented.

The ambiguous expression used in the act (45 Geo. III.) "that *it shall be lawful* for the grand jury to present a sum equal to the amount of private subscriptions," has led to a different practice under the law in different counties. In Roscommon it was the custom to present a sum equal to that subscribed. In Cork and Kerry the presentment was to a less amount. The grand juries had here availed themselves of a late construction put upon the act, which declared the sum presentable to be at their discretion. But the deviation from the ordinary practice of granting pound for pound, in proportion to the money subscribed, was much complained of. It was felt as an encroachment upon the funds, which, in their low state, they were little able to bear; and great dissatisfaction was expressed that the grand juries should cease to fulfil what has hitherto been presumed to have been the intention of the legislature, because it was now decided not to be binding upon them according to the strict letter of the law. This reluctance on the part of the grand juries to present, as they were wont to do, arose from the heavy expense which had been entailed by the system upon the counties. It had the effect, however, of raising an objection to subscribe, in the minds of many; for it had become quite a matter of uncertainty of what amount the county grant would be, and which might, after all, depend more upon the degree of influence which the superintendent officers happened to possess with the grand jurors, than the sum actually subscribed.

Thus the subscriptions falling off, and the presentments being curtailed at the same time, the resources of the Dispensaries had so materially declined that their existence was, in some places, brought into great jeopardy. In one or two instances, on the contrary, the reduction of the presentment was to be approved of. There were ample funds belonging to the charity, which were allowed to accumulate from year to year, while its immediate wants remained unprovided for. This was the case at Killarney; and here the permission given to the grand jury, of presenting at their discretion, or even withholding the presentment, was very properly taken advantage of. Hence it is clear they ought not to be called upon to assess a sum in all cases equal to the subscriptions certified, but only such a sum as may be equal to the necessity of the

case. A *supplemental* assessment, however, should always be made compulsory; such as would be sufficient to meet the existing exigencies of the institution. If the subscriptions decline, the presentment should be increased, and *vice versa;* by which plan, the funds would always be kept to a certain amount, not carried beyond, nor sinking below, what is deemed necessary for effectually providing for the relief of the sick poor.

If it be objected, that this mode of supplying the deficiency of subscriptions by assessment will have a tendency to diminish, or even to extinguish, private charity, it should be borne in mind, that although every encouragement is given to the present plan, it is attended with very imperfect success. Indeed, the low amount of subscriptions is scarcely worth considering, when the selfish stipulations are taken into account with which the contributions are too often accompanied. The privilege of being an administrator of the affairs of the charity—of having, in return, a vote and a right to issue visiting tickets—would still be continued under the proposed plan, as an inducement to persons to subscribe, while the unfeeling would be forced to contribute, and the expense not fall upon the benevolent alone. But it may be asked, upon whom should the assessment be levied? Not upon the struggling shopkeeper, or the occupying tenant, who barely exists after paying a rent which absorbs all his profits; not upon those who are but one degree removed above the lower classes, and, in too many instances, no better off than paupers themselves. Any increase of the county grant, under the existing circumstances, would only add to the general embarrassment—would only, in fact, impose a fresh burden upon the poor. But the evil would be in a great measure corrected, if the taxation were borne by the landlord; payable, however, in the first instance, by the tenant. To whatever amount the occupier of the soil might be assessed, it should be taken in lieu of so much rent paid to the proprietor; or the money required for the support of the medical institutions might be supplied from a general rate.

The entire management of the Dispensaries rests with the subscribers. They make by-laws, elect medical superintendent and committee, appoint treasurer, &c.; and as they are unrestricted by the law, and independent of the control of the grand jury in several important matters connected with the establishment and practical operation of the Dispensaries, they differ widely in their mode of conducting them. The principal differences have been explained in detail, and various inconsistencies and irregularities noticed, under the respective heads into which the subject has been divided; and hence it may be gathered how much more it would be for the advantage of the public, if, instead of being left to the arbitrary direction of the subscribers, an uniform plan of management were established in every instance.

But to whom can the administration of the affairs of a charity be so well entrusted as to those who chiefly contribute to its support? With whom can there be so strong a motive, as with those who have raised the funds, to take care that they are economically and legitimately applied? They are, besides, best fitted, by their local knowledge, to undertake the trust; and if it were withdrawn from them, it is to be feared they would cease to subscribe. On such grounds it would be advisable, without doubt, to leave the management entirely in the hands of the subscribers, provided it were really found that they ably conducted it; but the fact is otherwise. Of course I state the general impression made upon my mind by the result of my inquiry, and the experience I gained in those parts of the country which I visited. The particular instances which I met with of well-regulated institutions, should rather be adduced to the credit of the individual managers and medical officers themselves, than in favour of the system usually adopted. The only security, under the existing law, for the proper management of a Dispensary, is to be found in the combination of gentlemen who subscribe to it. But they are in general content with paying their money, and do not consider that they are bound to do more. They seldom visit the institution, or take part personally in the regulation of its affairs. Even the committee they elect is merely nominal: no minutes kept of their proceedings, no meetings held, but every thing left to the medical officer and to the treasurer, who is probably his friend: and it is not to be expected that, in such a case, without the corrective influence of an active and intelligent superintendence on the one side, and a sense of responsibility on the other, the charity to which they belong should fulfil its legitimate ends. One or other of the following evils is liable to arise: either a falling off in the activity of the charity, or a totally inert and inefficient state; an irregular performance of duty, or even palpable neglect; a growing or complete indifference to the wants of the poor; a waste of the funds, or an undue diversion of them, and relief improperly bestowed. Lastly, instances of peculation and jobbing with the funds may be added to these and other abuses which I have had occasion to notice in the course of my remarks.

Thus, in May 1833, the Treasurer of the Charelville Dispensary died in debt above 300*l.* to the charity. He had returned to the Committee, *as paid*, the druggists' bills, the salaries of the surgeon and apothecary, and other items, which all remained due at the time of his decease. The funds of the Cork General Dispensary had also been considerably embarrassed by a defalcation to the amount of 700*l.* and upwards, on the part of the late Treasurer, who, it should be observed, was still kept as accountant to the Dispensary, at a salary of 20*l.* per ann. To meet the deficiency, he had given up a deed secured upon house property, and producing 50*l.* per ann., to be held by the institution till the debt he had incurred should be paid off; but no interest is accruing to the funds of the charity, and it became necessary, in consequence of their low state, to apply a legacy of 500*l.* to the liquidation of unpaid debts, the interest of which is lost also*. It is clear, however, from the cases of flagrant abuse just given, that some better regulations are required in respect to the office of treasurer. Either he should be obliged to give security, or the money, instead of being left at his entire disposal, should be deposited in the Savings' Bank, but not in the name of the treasurer only.

By making the law precise, in the several particulars to which I have alluded, the enormities and abuses incidental to the present system, and the defects arising out of its imperfect organization, would in a great measure be obviated. Still, some expedient is required beyond an alteration of the law—some amendment in the mode of conducting the Dispensaries, so that their actual management may be in strict conformity with the law. With this view, I would suggest that clergymen of every denomination should be associated with the subscribers in the administration of the affairs of the charities, and that they and the treasurer, in virtue of his office, whether they subscribe or not, belong to the committee. By putting such persons in the direction, and in full possession of such privileges as the subscribers enjoy, they would feel that a certain responsibility attached to them, which would ensure their attending regularly at the meetings, and duly discharging the duties which were committed to them. As a further check against mismanagement, the plan has been suggested, and partly acted upon in the county of Cork, of appointing a board of superintendence from among the grand jury. They would represent the interests of the landed proprietors, upon whom it has been proposed to levy the rate, and who ought to have the power of protecting themselves against any misapplication or useless expenditure of the funds, by a strict "surveillance" over the charity. Such a board is appointed for the superintendence of gaols, and might be extended to the medical institutions. Its object would be to audit and certify the accounts, examine the reports, and inspect the establishment: not, however, to interfere with the internal management, so much as to exercise a controlling power over it. But, besides visiting the charities themselves, the grand jurors should appoint a medical inspector. This they already do for the gaols; and, at all events, a medical man is best fitted, whether it be for the inspection of the gaols or the medical institutions; and he could undertake the duties of both offices at the same or a small additional salary.

There is still another expedient to which I must direct attention before I conclude this part of my subject. I mean the annexation of a ward, with a few beds, to certain Dispensaries.

It is objected, that this appurtenance, or appendage, would tend to a permanent heavy increase of expense; the beds being always filled, or nominally so, with one or other description of patients: but it should be considered whether the advantages resulting from such a plan would not be more than commensurate with the expense attending it. A great deal of the distress among the poorer classes is, beyond a doubt, to be ascribed to the inadequacy of medical relief, and especially to the want of hospital accommodation The second part of my report will embrace this division of the subject. But it may be here remarked, that painful instances were stated, in the course of my inquiry, to have occurred of late, in which persons seized with fever, or cholera, or to whom an accident had befallen, were obliged to be abandoned to their fate—left under a hedge, or in a ditch or pit, by the road-side, to perish—because there was no place to take them to. If a wandering beggar was taken sick, he had no alternative, in several places, but to lie in the open air. Sometimes the poor would build a hut over him. This had been done in the case of a wretched object whom I found by the road-side, between Portumna and Eyrecourt, in the county of Galway. A man seized with the cholera, at Bantry, after lying all day in a boat, was put into a store, where he died. A woman, attacked by the same disease, had expired in a ditch. At Kenmore similar instances were adduced. Also, in the evidence upon the Athlone Dispensary (Westmeath side), the case is mentioned of some unfortunate persons

* For further proof of abuse in the fiscal management, see account of the North Cork Charitable Infirmary, in the second part of my report.

being ill with fever, who were turned out of their lodgings, and could find no shelter. Two of them died. Besides this sacrifice of life, there are other evils resulting from this exclusion. It tends much to the extension of pauperism. The external assistance at present afforded by the Dispensary does not relieve the poor man from the expense attending sickness: his capital is consumed in procuring drinks, sustenance, and other necessaries, to alleviate the sufferings of the sick bed; his clothes and furniture are pledged, to supply his wants in the course of a protracted illness; and when, at length, he recovers, he finds himself and his family beggared.

However, to avoid expense, it is not proposed to annex more than from five to ten beds to a Dispensary, and only in those medical stations where the distance from the County Infirmary, or Hospital, is so great that, although taxed for its support, the inhabitants of the district cannot have recourse to it. To give an idea of the permanent expense of such an establishment, beyond the first outlay for fitting up, furnishing, &c. it may be stated that each bed, if constantly occupied throughout the year, would cost about fifteen pounds, taking one case with another; which would include the maintenance of the patient, with medicines and nurse-tenders. There need be no additional expense for medical attendance.

[To be continued.]

ON CANCER, AND NOLI ME TANGERE.

By Alexander Ure, M.D. M R.C.S.
Late House-Surgeon to the Royal Infirmary at Glasgow.

In the following observations I intend to confine myself principally to the consideration of a mode of treating carcinomatous affections, recently introduced into practice, and to supply a rationale of its action, which I believe to possess some novelty.

In the infancy of the healing art, its professors, like the astronomers, sought to illustrate their own pursuit, by giving names to objects, derived from fantastic analogies. Thus the word cancer, signifying a crab, was introduced into pathology to denote first of all a tumor in the breast, surrounded with large veins, which may be said to correspond, in some measure, to the claws of a crab. "Struck with this resemblance," says Cayol, in the proem to his Treatise on Cancer, "the Greeks gave to the tumor in question the name of *καρκινος*, synonymous with the Latin word cancer: it may be, that they wished to express thereby the impression which one feels at the sight of this loathsome malady, in bestowing upon it the name of an animal, the aspect of which is to many people offensive."

In the progress of time, as other affections came to be recognized which seemed to resemble cancer of the breast in some of their symptoms, or in their horrible effects on the animal economy, though differing in form and situation, they were equally designated by the appellation of *καρκινος*, cancer, from which *καρκινομα*, carcinoma, the term now commonly received, is deduced.

If the researches of modern pathologists have been unable to draw aside the veil which hides the nature of a disease that has baffled all the efforts of the healing art, they have, however, reduced to their anatomical elements, changes of structure so singular and complicated as seemed to have defied description. These tumors have thus been proved to be ultimately reducible to two adventitious morbid tissues—each possessed of a peculiar structure—each presenting uniformly the same texture, whatever be the part of the body in which it is developed. They are, the scirrhus or hard cancer, and the fungus or soft cancer. The latter offers three modifications*.

1. Medullary fungus, with predominance of the encephaloid tissue.

2. Fungus melanodes, with black discolouration, from the excessive deposition of the colouring matter of the blood.

3. Fungus hæmatodes, with the prevalence of the thickened and dilated veins over the encephaloid tissue.

These two, then, are the grand types; we always find one or other of them present, sometimes both, in every cancerous tumor, whatever be its seat.

Wherever they occur they must be regarded with solicitude, as being either the precursors of a constitutional affection, which must lead to their multiplication and increase, or as being the outward visible sign of an inward deeply-rooted and incurable disease.

* Dr. R. Froriep in Encyclopädie der Medicin u. Chirurgie, Berlin, 1835.

When once established their march is destruction. The part primarily attacked first falls a prey, and then, step by step, each surrounding texture without any distinction. In this respect, Ovid has defined the disease with nosological precision.

Utque malum late solet immedicabile cancer
Serpere, et illæsas vitiatis addere partes.
M. II. 825.

Every part of the animal frame, from the most simple, nay, almost inorganic tissues, to the most complex organs, have in their turn yielded to the ravages of cancer.

Those writers who have instituted a comparison between the effects of this disease and gangrene, have egregiously erred. For, as an eminent author* has observed, gangrene seizes suddenly the part it is about to destroy, which soon thereafter is circumscribed by a well-marked line, beyond which it may not pass, whereas the cancer steals into the sound tissues by imperceptible degrees; in its manner of attack it is a sort of corrosion, which advances indefinitely.

Gangrene kills the part, and then abandons it to the external agents of dissolution; on the contrary, cancer consumes, devours, parts still endowed with life. Hence the ancients depicted it as a ferocious animal which gloats over its prey, and leaves it not till all be devoured. They have even carried this idea so far as to have recommended that the cancer should have daily supplies of meat presented to it to allay its hunger, and appease its fury.

A constant character of this class of maladies—one which never fails—is that, left to themselves, they are not susceptible of cure. They may, no doubt, remain stationary for a certain length of time, and even during the natural life of the subject. But when a change is wrought in their condition, their tendency is ever to augment, never to diminish. Lastly, arrived at a certain pitch, they occasion various aberrations of function, especially of nutrition; whence result the emaciation, loss of appetite, the dirty yellow or leaden tinge of the complexion, the hectic fever, and other signs of cancerous cachexy. Death is the only means of emancipating the unhappy sufferer from the accumulated load of misery.

It would be a waste of time to enter upon an enumeration of the different hypotheses that have been promulgated as to the nature of cancer; suffice it to say, they are vague and absurd. An avowal of ignorance is better than vainly speculating about the cause of a disease which has eluded the sagacity of every inquirer in every age.

To the advanced state of organic chemistry we are indebted for our only minute knowledge of the constituent parts of cancerous tumors. Probably at no distant period, when we become still more intimately acquainted with these products of unhealthy action, we shall be enabled, by a synthetic mode of induction, to arrive at the true explanation of their origin. In the following elaborate analysis of M. Foy *—

	Fung. Medullar.	Scirrhus.
Albumen	47·00	42·00
White fatty matter	7·50	5·00
Red ditto	5·35	3·25
Osmazome	4·00	0
Fibrin	6 50	5·85
Water	8·00	5·00
Oxide of iron	1·35	1·65
Subphosphate of lime	6·30	16 60
Carbonate of soda	2·75	5·00
——— lime	4·00	6·60
——— magnesia	1·00	0·85
Muriate of potash	2·70	4·10
——— soda	2·00	3·25
Tartrate of soda	·35	0 85

it will be seen that in scirrhus and encephaloid, albumen is the principal component. That this is not healthy albumen may be fairly presumed; but wherein consists that modification in its nature which constitutes the morbid deviation, has not been ascertained. The cause which determines the deposition of this morbid albumen is alike involved in obscurity; consequently we are left in the dark, destitute of the means of counteracting its baneful effects on the system at large.

It is generally admitted that the only way to get rid of an incurable disorder is to take away from the body the affected part, provided that be possible. Hence from time immemorial the external treatment of cancer has consisted in its removal by the knife, ligature, or caustics. As the caustics hitherto employed have been for the most part inefficient, owing either to the difficulties encountered in applying them, or be-

* Monsieur Cayol.

* Archives générales de Médecine, tom. xvii.

cause they did not penetrate to the roots of the disease, they are but seldom resorted to. Indeed, the only remedies of this class that continue in use are arsenic and corrosive sublimate. But the action of both requires to be limited to a very small extent of surface, from the danger with which their absorption into the system is fraught. Hence in the great majority of cases, surgeons consider the knife as both the readiest and safest plan for adoption. But that method is not without its inconveniences. It is undeniable that the operation, say for cancer of the breast, is neither very difficult, nor perhaps very dangerous. The wound inflicted by the scalpel differs in no wise from a simple wound—it cicatrizes for the most part speedily; but what is the sequel? After a few months have elapsed, it may perchance be a year or two, the disease breaks out afresh in the cicatrix, or in some other part of the body, and that with increased virulence. Thus, independently of the natural repugnance evinced by females against all such operations, and the perils they may induce, we find superadded the frequency of relapse. It cannot be denied that there are exceptions, where the patient has survived many years the operation, but such, alas! are comparatively rare.

In a paper published in the MEDICAL GAZETTE of December last, I described the chemical and therapeutical properties of an escharotic, which has been successfully employed in the treatment of scirrhus and carcinoma, by Dr. Canquoin, of Paris. It is a curious fact, which appears to have been overlooked, that our illustrious chemical philosopher, Sir H. Davy, was the first to point out the corrosive nature of the chloride of zinc, the caustic in question. He says, p. 376 of his Elements*, in reference to the compound procured when zinc is burned in chlorine, "Its taste is intensely acrid, and it corrodes the skin."

In the above paper it was shewn that chloride of zinc has a very powerful affinity for albumen. Now I have no doubt, that a part of its efficacy in eradicating from their ultimate ramifications cancerous tumors, is to be ascribed in no small degree to the powerful action it exercises on albumen. In this way numerous minute points, undiscoverable by the surgeon, and inaccessible to his knife, are searched out and destroyed. For when the chloride of zinc, whether the formula of the flour paste of Canquoin, or in that of the sulphate of lime paste*, as proposed by myself, comes into contact with the morbid albumen, it gradually penetrates its substance so as to deprive it of vitality, and to form an eschar, whose thickness you can estimate beforehand with unerring precision.

It is one of the great truths of modern physiology, that the vital and chemical forces are antagonists to each other, and hence those parts in which the vitality is feeble are soonest affected by chemical agents. Thus we may conceive how the morbid albumen, prone to spontaneous changes, is more readily affected than the surrounding parts by the above phagedænic substance.

The operation of this caustic is purely local; rarely, except it be applied on the face near the eyelids, where there is much loose cellular tissue, does it give rise to any surrounding inflammation or intumescence. The eschar is separated in most cases from the 8th to the 12th day, coming away quite entire, and leaving behind a singularly healthy sore, which heals with great rapidity. Canquoin is of opinion that it modifies the subjacent tissues; it assuredly gives rise to healthy granulation and laudable pus. In the instances where I have applied it most largely, I have never known it productive of the slightest constitutional disturbance. The pulse remained natural, and the skin cool. The pain accompanying its action is of a violent burning character, persisting with great intensity for the first 7 or 8 hours: after that time, that is, when the surface is fairly eroded, it becomes supportable, as the patients tell you, and continues so during the remainder of the application of the remedy. An important point is, that the pain is in

* Elements of Chemical Philosophy. London, 1812.

* Chloride of zinc, in order that it may act with efficacy, must be made in a concentrated form. When diluted, it acts merely as an irritant. Being extremely deliquescent, it would become rapidly dilute, if some means were not taken to counteract that tendency. It is well known that sulphate of lime recently calcined attracts moisture with great avidity, consolidates it in its substance, and still remains dry. Hence, when such anhydrous gypsum is mixed with the chloride, it not only enables us to reduce its escharotic power to any desired standard, but it protects it from change, and by its porosity allows it gradually to transude from the body of the cake into the morbific tissue.

a great measure under the control of opium; a full dose, say from xxv. to xxxv. minims of the liquor opii sedativus, seldom fails to sooth the pain, and render the application very tolerable. I will not pretend to define the absolute amount of pain occasioned, since that greatly depends on individual peculiarities, but this I will tell you, that a lady on whose breast I recently applied a thick layer of the phagedenic paste over an area of a couple of square inches for three days continuously, had some time after an attack of urticaria, to which she was, in common with her family, subject; and she assured me, after her recovery, that she would sooner suffer ten such applications of the paste, than a single attack of nettlerash.

The cases to which the chloride of zinc is best adapted might with propriety be classed into subcutaneous and cutaneous cancers, and carcinomatous ulceration, frequently termed *noli me tangere.*

To the former belong scirrhous tumors, &c., developed in the conglomerate or conglobate glands, and in the free cellular tissue, where the use of the knife is impracticable, or the patient refuses to submit to extirpation by incision. To the second appertain those little lenticular or pisiform indurations which make their appearance in the skin. They are at first quite indolent, and often remain so for years. Mr. Guthrie shewed me lately a military man who had two of them upon his face, near the root of the nose; they had existed for 11 years, and occasioned little or no inconvenience. These indurations are apt, however, to become ultimately painful, and to terminate in ulceration. It is these little bodies which, when situated upon the face, I believe have been made to form a genus apart, and dignified with the title of *lupoïd tubercle*—a distinction quite superfluous, since they approach closely, as well in their symptoms as in their intimate structure, to the scirrhus of the mamma and other parts. When ulceration takes place, the ulcer is always central and round, covered with a little greenish crust or scab; it looks as if the middle had been punched out. There may be a primary affection, the *papula maligna* of the Germans, and the *lupoïd tubercle* of some modern nosologists. There may be also a secondary affection, in which case they appear most commonly in the vicinity of a cancer in the breast or rectum. They have also been observed about the skin of the neck, the abdomen, and the extremities. Cayol is of opinion that, generally speaking, these small cutaneous scirrhi are a sure criterion of the cancerous diathesis, and that they become, sooner or later, complicated with some other malignant affection.

So long as they exist alone, they never occasion much suffering, and when they ulcerate, which is not very frequent, they never acquire a great volume. In their course they are not to be compared with the primary cancerous ulcer. If these be productive of little uneasiness, and often unattended with constitutional derangement, let it be remembered that they are implanted in a part endowed with a low degree of sensibility.

I have been for some time past in the habit of seeing a lady affected with cancerous ulceration of the breast, in whom their rapidity of reproduction is remarkable.

In conclusion, the chloride of zinc paste may be most beneficially applied to carcinomatous ulceration, independent of scirrhous tumors. The ulcer commences in a desquamation of the skin, or excoriated pimple, and spreads insidiously in extent and profundity. The surface presents a rugose or scabrous appearance; the base and margins are hard,—the latter are elevated and thickened, not always everted; the surface emits a little sanies, and frequently bloody ichor; the confines are often varicose, and of a reddish or violet hue. It is sometimes free from pain; at another smarting pain is felt, or a pain resembling the punctures of needles. It is vulgarly denominated *noli me tangere;* but as such ulcers are incapable of spontaneous cure—as they often follow the same course as cancerous ulceration proceeding from another cause—as they often present, although to a less degree, various characters of cancer, such as the lancinating pain and the occasional hæmorrhages—as we often find the neighbouring glands diseased, and as they frequently coincide with other cancerous diseases—I see no reason for calling them by any other name than cancerous ulcer, as Cayol has done. I adduce the three following cases in illustration of the above principles, and of those laid down in my former papers.

Case I.—*Scirrhus of the Breast—Cure.*

Lydia Debeney, æt. 46, admitted into the Westminster Hospital, February 2, as a patient of Mr. Lynn*.

The following symptoms were observed at the time of her admission. Above and to the outer side of the nipple of the left mamma, a hard nodulated tumor, about as large as a hen's egg, is to be felt. The tumor appears to be perfectly isolated from the superincumbent integument, except at one point, where there is a distinct puckering in the skin, which is otherwise healthy; it is quite moveable, and unconnected with the surrounding tissues. The nipple is slightly retracted; a small indurated gland is to be felt in the axilla. Has frequently severe pricking and lancinating pain in the tumor.

She gives the following history of her case:—Three years ago, in nursing her child, she remembers that more than once it fell heavily on the left breast, causing rather severe pain, which, however, soon subsided. After this she now and then noticed a slight swelling in the breast, which gave her but little uneasiness. About six months prior to the date of her admission the tumor had attained the size of a walnut, and then, for the first time, was attended with pain. By the advice of a medical man she obtained admission into the hospital, in order to have the tumor removed.

By Mr. Guthrie's kind invitation, in concurrence with Mr. Lynn and his other colleagues, on February 9, I applied the phagedænic paste, consisting of one part of chloride of zinc to two parts of sulphate of lime, the scarf skin covering the tumor having been previously stripped by a blister. The paste occupied an oval space about $2\frac{3}{4}$ inches by two inches, and was three lines thick.

Feb. 10th. — Suffered considerable pain during the afternoon and evening, which prevented sleep. Pain is now much abated. Had forty minims of the liq. opii sed. in divided doses. Pulse natural; skin cool. There is no surrounding swelling or redness. Bowels slow.

Ordered a dose of castor oil.

* For the history of this case I am indebted to Mr. Thurnam, of the Westminster Hospital.

12th.—The pasty cake was removed. There is a slight intumescence of the breast, and an extremely narrow reddish areola bounding the eschar, which is dry, white, renitent, and well defined. Says she felt some pain this morning. Countenance good; pulse natural; tongue clean.

Apply warm poultices.

17th.—Eschar has come away; it is about $2\frac{1}{2}$ inches by 2 inches in size, and half an inch thick at the centre. Its under surface is rendered uneven by striæ running in a radiated manner towards the middle, resembling in some degree a large mushroom. There is little or no surrounding inflammation. Functions natural.

20th.—On carefully examining the bottom of the sore, a small granular indurated substance was to be felt, for which a thin layer of the paste was re-applied. From this the eschar separated in a few days, leaving a singularly healthy sore, free from any hardness, which rapidly cicatrized, and she was dismissed cured about the end of March. The indurated axillary gland disappeared in the course of the cure.

Case II.—*Noli me Tangere, or Cancerous Ulcer of the Face—Cure.*

Anne M'Gullen, æt. 71, married, and the mother of several children. Below the inner angle of right eye is situated an ulcer, possessing the characters of the carcinomatous ulcer. The caruncula lachrymalis, punctum, and semilunar fold, are involved in the malignant degeneration.

About a year ago she states, that, after an attack of erysipelas, a sore made its appearance at the outer angle of the eye; this healed up, but soon after was followed by the present sore, which has continued to get worse ever since. Has no pain in the ulcer. On the cheek, about three lines from the margin of the sore, is a small lenticular induration of the skin, with a minute central point of ulceration.

Her general health is tolerably good. By the kind permission of Mr. Walker, under whose care she was a patient at St. George's Hospital, I applied to the surface of the sore a thin layer of the phagedænic paste. The eschar came away about ten days after, leaving a healthy sore, which has since healed.

The escharotic was not permitted to touch the diseased caruncula, for fear of exciting ophthalmic inflammation; that, therefore, remained to be snipped away after the ulcer was cured.

CASE III.—*Noli me Tangere, or Cancerous Ulcer of the Face—Cure.*

Elizabeth Rawlinson, æt. 40, married, a patient of Mr. Lawrence, in St. Bartholomew's Hospital. On left cheek is a narrow strip of ulceration, running along the lower margin of the orbit, and extending a little way up its outer margin. The edges of the sore are hard and prominent, and the surface in some points is covered with a little greenish crust; surrounding integuments are healthy, with the exception of a little indurated spot in the skin, below the inner angle of eye. The sore is free from pain. States that five years ago a splinter of wood entered her cheek, close below the orbit, which produced a little hard spot. This remained unchanged till the month of May last year, when she accidentally struck her face against a door, and from that circumstance she dates the commencement of the ulceration, which, notwithstanding a variety of treatment, has been creeping along insidiously ever since. Her general health is good.

Mr. Lawrence considering it a proper case for a trial of the chloride paste, was good enough to allow me to apply it on the 25th March. On the 30th the eschar came away, leaving a well-defined healthy-looking sore. Soon thereafter she became an out-patient of the hospital, and on the 13th April returned, and shewed herself perfectly cured.

13, Charlotte-Street, Bedford-Sq.
May 17, 1836.

DEATH OF A VERY AGED FEMALE.

EXAMINATION OF HER BODY; WITH REMARKS.

To the Editor of the Medical Gazette.

SIR,

SHOULD you deem the following case, imperfect as it is, worthy a place in the Gazette, I shall feel obliged by its insertion.—I remain, sir,

Your obedient servant,
T. OGIER WARD,
M.D. Oxon.

Birmingham, May 17th, 1836.

A. B., æt. 96, cabinet locksmith, of very regular and temperate habits, had never suffered a day's illness till the last four years of her life, when she had a paralytic attack that deprived her of the use of her right side for sixteen weeks, and compelled her to relinquish her occupation, which she had continued for eighty-four years without intermission. While confined to bed with paralysis, a spreading ulcer of her leg from a blow healed up entirely; and at the end of the sixteen weeks she could walk about, which she continued to do till September last, when she fell down stairs, and from that time never left her bed, except to be carried to the night-chair. Nevertheless, she always said that she was not hurt by the fall, though her right side was quite paralyzed, and maintained perfect health, except a slight cough latterly during the night, to the day of her death. Her senses were acute, and her intellect clear, till within the last few days, when it became rather dull, and her speech indistinct. Her bowels also were less regular, and only acted on alternate days. Five days before death her daughter perceived a sore on the sacrum, of which she was not at all aware from any pain or uneasiness. The morning she died she ate her breakfast as usual, and was quite well at eleven; but in an hour afterwards she was found dead.

Sectio Cadaveris, 30 hours after death.—Body much emaciated, features remarkably calm; limbs rather stiff; hair thin, but not at all grey. Eyes particularly sunken, and cornea rather opaque. Only one tooth, the left upper incisor. Sore on sacrum; no ecchymosis on the lower parts of the body. Chest round, flattened laterally, muscles wasted and soft, cartilages not ossified, but the ribs were remarkably thin. The lungs were collapsed; the right was adherent to the pleura. Both were emphysematous in front, but the whole of the back and lower parts, especially the latter, was infiltrated with an almost fluid blood, that ran out when they were

cut, mingled with much serum and froth. These congested portions were still crepitant, but so friable as to break down into a pulp by slight pressure through the pleura, particularly in the lower lobes, and much resembled that congested and œdematous state of the lungs which is observed around gangrenous portions, but in this case there was not the slightest gangrenous odour. A small piece of the left lung was in a state of "grey carnification," being void of crepitation, and tough and leathery. Bronchi slightly redder than natural. The heart contained some fibrinous clots, chiefly in its right cavities; was small and very flaccid, and so soft that the finger passed with ease through its walls. Its proportions were normal, and its valves all healthy. One of the corpora sesamoidea of the aorta was enlarged and cartilaginous. The aorta was rather dilated at its arch, but there was no ossific deposit along its whole course to its division into the two iliacs, where the projecting angle was ossified. Its lining membrane was of the natural colour.

The liver was small, and the left lobe was fissured at its lower angle, horizontally, as if by the pressure of a string. There was a small lobe, like the lobulus Spigelii, attached to the front and lower edge of the right lobe. The substance of the liver was apparently healthy, but remarkably soft, and much congested. The gall-bladder contained some green viscid bile; the spleen was of the natural size, wrinkled internally, and softened like the lungs and liver, but of a brighter colour. The kidneys, deeply fissured, were small and healthy, but flaccid. The stomach was large, and contained some curdy mucus, probably the remains of the breakfast, but it was perfectly healthy throughout, although it was marbled with ramiform injection. The intestines appeared quite healthy externally, and contained some hardish fæcal matter. The os tincæ was rather wide (she had borne eight children), and there was an ecchymosed spot at the fundus, the size of a shilling. The ovaries contained a few serous cysts. The intervertebral substance was removed from above and below the sixth dorsal vertebra in front, but there was not the least approach to luxation, although the vertebræ appeared separated in front to the extent of half an inch.

Remarks.—The absence of decided appearances of disease in this case corresponds exactly with the permanent good health of the subject; for the adhesion of the pleura is so frequently found where there has been no reason to anticipate its existence during life, that it hardly deserves notice as a morbid appearance. The almost perfect freedom from ossific deposits is also another remarkable feature of this case. Was this connected at all with the temperate habits of the deceased? The death of the patient appears to have originated in the ganglionic system of nerves, which, no longer stimulating the flaccid and softened heart, produced congestion and imperfect arterialization of the blood in the lungs, an insufficient supply of the vital fluid to maintain the energies of the brain (indicated by the increasing obtuseness of intellect before death, together with impaired digestion and retarded peristaltic action of the intestines), and stagnation in the large venous trunks and in the liver. Although the brain was not examined, the extremely congested state of the lungs and liver, with the slight cough, and absence of signs or symptoms of suffocation or of bronchial disease, indicate that the lungs were gradually oppressed, but not overwhelmed, by the sanguineous accumulation; and preclude our taking the brain as our *point de départ* in investigating the series of morbid actions. The softened state of the tissue of the lungs, and particularly of the liver, is probably referrible to that tendency in stagnant or effused blood (observed in polypi of the heart and in the pneumonia of new-born children) to pass through those changes which are usually the results of inflammation, as coagulation, suppuration, &c.; in which process the containing or infiltrated organ, as the case may be, becomes implicated, and participates. This view of the cause of the morbid appearance is supported by the fact, that the patient lay constantly upon her back for a long time previous to her death. The unimpaired state of the digestive organs corresponded with the keenness of her appetite even to the last; for when her daughter, who gave her the last meal, perceiving that she rattled in her throat a little, ceased to feed her, and was removing the cup, she stretched out her hand, and would not part with it till it was empty.

REMUNERATION

FOR

PRACTITIONERS CONSULTED BY INSURANCE COMPANIES.

To the Editor of the Medical Gazette.

Sir,

More than six weeks have elapsed since the last number of the Medico-Chirurgical Review has been published, yet, hitherto, no notice seems to have been taken of the article on Insurances, though few could be more derogatory to the honour and dignity of the medical profession. That a sordid actuary, influenced by paltry notions of false economy, should utter an abusive tirade against the members of a too liberal profession, may not prove a source of much astonishment, though, *en passant*, it might be esteemed a matter of some surprise and doubt, if "one of the ablest actuaries in Europe" could not at once detect so gross and barefaced an attempt at imposition on the part of the medical profession, as that, which, it has been fancied, might be practised against the innocent and simple-minded Insurance Companies; but that a member of our profession, and the editor of a respectable journal, should permit his work to be made a vehicle for the propagation of scandal against the body of which he is a member, may well be deemed a sufficient cause of surprise and regret.

But to come at once to the subject matter in question, in the investigation of which the party referred to displays equally good taste and acumen, it appears to me, that the subject of medical remuneration by Insurance Companies ought not to be taken as one question, as it generally is, but should be divided into a series of minor ones:—as, 1st, are medical men justly entitled to seek remuneration for professional opinions? 2d, Are the opinions of medical men, when given to Insurance Companies, to be considered as professional, and where are the proofs to be found? 3d, Is either of the contracting parties more interested than the other in the effecting of an insurance? And, lastly, granting that *both* are equally interested, which of the two ought the medical man select to pay him his fee, and for what reasons? To the first there can be decidedly but one answer; yes, undoubtedly! For, to view the matter as a commercial transaction—and in this way it is most likely to come home to the minds of those most interested in opposing it—the medical man has embarked a large capital in his professional education, in return for which he receives nothing but the capability of forming an opinion, and that opinion, therefore, becomes as much an article of fair and open commerce, as a bale of cloth to a mercer, or a policy to an insurance office; and, if discovered to be incorrect, exposes the vendor to as much disgrace and loss, as the cloth, if damaged, or a dishonoured policy would bring upon the latter; and as no one would ask either of those commercial characters for a part of their merchandise without paying for it its due value, neither are they justified in seeking from a medical man what they would not grant to others. In reply to the second question, I would merely refer to the list of printed queries sent from the different insurance offices; and then ask, could any but a medical man fill them up? And if so, why must *always* one of the referees be a member of the medical profession?

The next question seems to me to be that on which the advocates of medical remuneration have generally failed; and this because they do not take, in the first instance, a sufficiently commanding position, by asserting, that in proportion as the company and the insurer are benefited by the opinion of the referee, in the same ratio are both of them justly subject to the claims of the medical man; the insurance offices having with great plausibility asserted, that as they are not the persons benefited, they ought not to be called on to pay the expenses. In reply to this I would observe, that they are commercial bodies banded together for their own emolument; for which emolument they are dependent on a certain class of customers, and, in order to obtain it with some degree of security to themselves, they are necessitated to employ an agent, whom they must pay, and a medical referee, whom some of them, if they can avoid it, will not pay: in this particular differing from the recruiting service, who might with as much justice tell the medical man, "it is not we that are to pay you for your trouble, but those whom you report upon; as, they being volunteers, it is upon them

the favour has been conferred." Though the reverse is the case; for while, to both these bodies, the obtaining a healthy recruit is a source of considerable advantage, the avoiding an unsound one is a matter of almost equal congratulation; but not so to the person desirous of being enrolled, who, feeling that his rejection is owing to the report of the examiner, let the matter be blindfolded as it may, is not likely to entertain a very friendly disposition towards him.

And now with respect to the last question, as to whom the medical man should take his fee from. From the Insurance Company, certainly; for their sakes as well as from respect to his own feelings; for though, as a matter of pecuniary emolument, it can be of little consequence to him through whose hands he receives his fee, it should always be borne in mind, that when the referee is the regular attendant of the insurer, it is almost more than can be expected that the former should completely forget the friendly relations which have existed between him and the person referring to him; the natural result of which must be the giving his mind a bias in favour of the latter and to the prejudice of the company. Impressed with this conviction, scrupulous persons will decline accepting a fee from the individual, while they can have no hesitation in receiving it from the company; and, in fact, the very offer emanating from the latter must at once bring to the mind of the referee the recollection, that on the present occasion he is called on, not to act the part of a friend, but strictly and impartially to discharge certain professional duties towards both, and to give an opinion which is recorded against him, and which, if not critically correct, may hereafter be adduced to the injury of his professional character.

So thoroughly are a few of the Insurance Offices now impressed with the conviction of this fact, that they always take care to have a referee of their own in every town in which there is an agent; while very recently another office, "The Sun," has adopted the plan of making each person applying to be insured deposit one pound in the hands of the agent, as the fee for the referee. Which of these modes is the more desirable to be generally adopted, is a matter of little consideration to the profession as a body, or to the undersigned as an individual; but that medical men may not sacrifice to a set of rich mendicants any portion of their hardly earned pittances, through a too refined sense of liberality — a liberality, by the by, which is not *permitted* in either the Premier or the Chancellor — is the earnest hope of

Your obedient servant,

OCEANICUS.

May 17, 1836.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Observations on the Medical and Surgical Agency of the Air-pump. Read before the British Association, in 1835. BY SIR JAMES MURRAY, M.D. T.C.D. &c.

THIS pamphlet contains a variety of detached and somewhat desultory observations on the effects—first of rarefaction, and secondly, of condensation of the air over greater or smaller portions of the body.

The production of rarefaction on the surface, or a diminution of the atmospheric pressure, is represented as leading to various important curative effects; among others, that of increasing cutaneous transpiration, and carrying off "a great quantity of carbon and hydrogen from the circulatory system." By this contrivance it is thought that the disadvantages of stimulating, and of nauseating diaphoretics, may both be avoided in fevers and analogous ailments. In inflammations a still more important end, we are told, may be accomplished; for, "after full and free bleeding, it is often a question whether more blood can be lost with safety: here, its abstraction from the *diseased viscus*, and its diffusion among the sound vessels of the skin, unloads the *part affected*, without dangerously debilitating the constitution. We draw off the blood from the oppressed organ, but we do not risk the patient's life by too much waste of that fluid which sustains it."

In nervous diseases also, (though it is allowed to be less conspicuous) the beneficial effect of rarefaction is spoken of as well marked, and frequently very

efficacious. The object is to fill the vessels of the part, and thus elicit heat, and stimulate circulation; and the effects of this kind of dry cupping are illustrated by two cases, which, however, we suspect the medical reader would think scarcely sufficient to prove what is intended. The method of effecting this rarefaction of the surface is thus described:—

"For the purpose of insulating a patient's body from the external air, a small oval bath, of tin, zinc, or copper, is employed; its lip is furnished with a groove to contain luting, for connecting the lid or cover.

"In this lid is an aperture to pass over the patient's head, and around this opening is fitted a margin of air-tight cloth, which applies itself so as to embrace the top of the chest and back of the neck. The patient sits upon a seat, easily varied to a regular height, and his head is unconfined, the body and limbs only being inclosed. When the bath is thus adjusted, it is to be partially rarefied, either by the condensation of a little hot air or steam, or by a few strokes of the suction-pump.

"When the air of the bath is exhausted, to the extent of two inches, upon the mercurial gauge, it indicates the removal of *one hundred and forty-four pounds* from every square foot of patient's surface, or one pound from every square inch.

"Rarefaction to this degree is the utmost at any time required, and does not injuriously interfere with those great hydraulic laws which modify either the general or pulmonary circulation. But, on the other hand, when the principle is applied *topically* to a part of the trunk, or to the limbs, as no interference with respiration can then occur, *two or three pounds* of pressure may be drawn from every square inch, but there is seldom occasion to proceed to that extent. To draw away even a fifteenth part of the atmospheric gravity, will, I think, be found a therapeutic agent, abundantly powerful for any useful purpose."

Scarcely less importance is attached to the effects of compression by condensation of the atmosphere; but the manner of accomplishing this, except in one or two instances, is not sufficiently explained. We are told, indeed, with regard to the reduction of a prolapsed uterus, that—

"This was effected simply by connecting the neck of a small oiled bladder with the air-syringe; when the air was forced into the bladder, it was reflected around the protruded uterus, embracing that organ, as if in a double night-cap; it then grasped, corrugated, and diminished the prolapsed womb, and propelled it back into the pelvis, pushed on, and retained in its place, by the expanded bladder."

And again:—

"When you put the hand into a wet bladder, and exhaust the air, there is a very intense degree of cold generated, and the compression is more than the fingers can easily bear. I heated the bladder in warm water, and even then the temperature of the hand was reduced. The fingers seen through the bladder, were wrinkled and bloodless. There is no doubt but that hæmorrhages would be instantly suppressed by this tight embracing *involucrum*, which adapts itself to every eminence and depression of the joints and fingers, so as to press equally on all parts. There is very brisk re-action when the compression is removed, the hand becomes red and hot, by the increased return of the circulation to the surface.

"Drawing a limb into a tube of oiled silk, or even a softened bladder, open at both ends, and confined by tape, above and below the part affected, presents a ready method of effecting speedy and equable compression. When the contained air is withdrawn from this envelope, it contracts and embraces every point, *high* or *low*, in an equal degree."

We have thus drawn attention to Sir James Murray's views, because they are undoubtedly ingenious, and to a certain, though, we think, limited, extent will probably be found to admit of useful application to practice.

An Introduction to Phrenology, in the form of question and answer. By Robert Macnish.

It must be allowed that the phrenologists cater much for the amusement of the public, however little they do for their edification. They produce manuals and vademecums in abundance, richly stored with anecdote and choice extract; but we must take by far the greater part of their pleasantries with a grain of salt, for we do not find them very scrupulous either about facts or vouchers.

The present little book is a lively per-

formance, characterized by most of the peculiarities of the author of the Anatomy of Drunkenness. "The form of question and answer," says Dr. Macnish, "has been adopted as well suited for a short sketch of a *debatable* subject like the present. It has enabled me to bring forward the objections to the science in the way in which they are usually stated, and to meet them with suitable replies."

The author, however, has not confined all his *debatable* matter to his text: some of it, and not the least diverting, is thrown into the notes. We have in this part some rare extracts from Cobbett, on Milton, and on the choice of a wife; also remarks on the accomplished artist who trains the *learned fleas*, &c. &c. The following passage we extract as containing a curious error:—

"Phrenologists positively declare, that no correct inference can be deduced in cases of old age and diseased brain; yet we had lately the skull of Dean Swift brought forward as an evidence against the science, in the face of the notorious fact, that the Dean died at the age of seventy-eight, had been subject to loss of memory, and frantic fits of passion, eleven years before his death, and that the last five years of his life were passed in idiocy."

Mr. Macnish makes an odd mistake in this matter. If he look again into the Phrenological Journal—which he so often quotes as a work of authority—he will find that he has made a very ridiculous blunder. The skull of Dean Swift happens to have been brought forward by the phrenologists themselves as an evidence *for* "the science." The absurdity of such a proceeding—involving as it did a base attack on the character of the eminent deceased, we exposed in this journal (Med. Gaz. vol. xvii. p. 115), and if we are not much mistaken, Mr. Macnish himself will now freely admit the absurdity of all such "inferences"—whether the gist of the argument be for or against "the science."

That Mr. Macnish is a wag, and not very whig-radically disposed, seems to be a fair inference from the following question and answer:—

"*You have already hinted at the distinction between Individuality and Eventuality. Illustrate this point by some other examples?*

"Individuality concerns itself with what exists, Eventuality with what happens. Substantive nouns express the objects of the former, active verbs of the latter. When I say that Lord John Russel is a *little man*, that the Duke of Wellington has a Roman nose, or that camels have humps upon their backs, it is Individuality which suggests these remarks: when, however, I observe that *after being challenged by Sir Robert Peel, Mr. O'Connell contrived to get himself arrested, and then made a vow in heaven never to fight duels;* that the Houses of Parliament were burned in consequence of overheating the flues; or that Earl Spencer *rears the fattest cattle in England*, then the observations are suggested by Eventuality."

MEDICAL GAZETTE.

Saturday, May 21, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

LIFE INSURANCE POLICY FEES.

The Glasgow faculty, we find, have taken a deliberate and decided step in regard to the propriety of remunerating medical men consulted by assurance companies. Our opinions on this subject are known. We have long since expressed ourselves in favour of the practitioner being paid for his services when applied to confidentially, and on so delicate a point; nor have we yet read or heard any thing to tempt us to change our mind.

The resolutions passed at Glasgow are as follows:—

"1st. That henceforward no list of queries regarding the health of any individual, forwarded by, or on account of, any Insurance Company, to any member of this body, shall be attended to, unless accompanied by a fee.

"2d. That they are only claiming their right, when they require a fee for answering such queries. To do so with proper care is often a matter of considerable trouble: and as the value to the insuring parties of an accurate his-

tory of the individual's health, constitution, and habits, by one long acquainted with these circumstances, must be immense, it seems obviously unjust that the family practitioner should be called on to furnish such a document without remuneration.

"3d. That it is unreasonable the medical referee should demand payment of his fee from the applicant for insurance. Such demand may be fairly objected to, on the ground, that it lies altogether with the Insurance Company to satisfy themselves regarding the state of the applicant's health—that the information required is altogether for their security and guidance—and that the premium ought to cover this as well as other expenses.

4th. That the Insurance Companies are justly liable in payment of the fee, not only for the above reasons, but more especially from the consideration that the reference in question is in all cases a confidential one, and not unfrequently the information given disappoints the wishes and expectations of the parties desiring insurance. The idea of Insurance Companies getting confidential or useful answers to such delicate and searching questions as are contained in these lists, not only regarding the individual in question, but his family and relatives, by putting open schedules [without a fee] into his hands, and telling him to get them filled up as he best can, appears to the Faculty to be so absurd, as not to admit of being entertained for a moment."

We wish the other medical corporations would imitate at least the zeal of the Faculty of Glasgow, in consulting the interests of the individual members belonging to them. Their resolutions, we see, are not deficient in strength; and they must be allowed to embrace all the disputable points connected with the subject, which they effectually place in a prominent point of view, so as to secure the just censure and indignation of the medical reader.

A correspondent, who signs himself "Oceanicus," in the present number, has also taken up the question. His arguments are shrewd, and he views the subject in a clear and rational light. The companies have no right to call upon the profession to give mature opinions without adequate remuneration; nor do we see how a fair comparison can be drawn between the information elicited from mere non-professional friends, and those of vital consequence sought to be procured from the *medical* attendant.

"Oceanicus" is severe upon our contemporary, the Medico-Chirurgical Review, for advocating the non-paying side of the question; but more particularly for insinuating the possibility of gross frauds being practised by medical men, if the paying system were adopted. We think our correspondent needlessly tart with our contemporary; a little plain discussion, with temper, is all the subject requires.

On looking into the article referred to by "Oceanicus," we perceive that, with the exception of the apprehended frauds that *might* take place, there is nothing urged by the editor, possessing, in any striking degree, either novelty or force. He begins by putting the *medical* friend on the same footing as any other casual friend—"say his solicitor." He next supposes the applicant who desires to be insured procuring, from each of these, certificates, first of his moral character and habits, and secondly of his state of health; and then he asks, ought the Insurance Company to pay for either or both of these documents, or ought the applicant himself?

Now we say, that whoever makes the request to have the necessary certificate, is bound in honour to requite the party applied to. But the difference is very great between the *solicitor* friend and the *medical.* The former is not asked for a testimonial in the way of his profession; if he were, he would know exactly what entry to make in his cost-book: whereas the other is expected to give a strictly professional opinion, which, in general,

cannot be formed without much mature thought, and much anxiety, arising out of the peculiar position in which he is placed between the company and his patient.

It is, however, not a fair statement of the case, to say that the certificate is always, or even usually, asked for by the party wishing to be insured. The application comes from the Insurance Company, who have in an indirect, and apparently very disinterested manner, wormed out the name of the medical friend. And how do they then generally proceed? They send their formula to be filled up: they caution us—they tell us, lest we should certify falsely, that our answer *will be filed:* and at the mildest, they intimate that our reply is to be considered *confidential*—meaning, of course, that we should consult their interest at least as much as that of our patient. Who, then, will seriously tell us that it is unreasonable to expect remuneration from such persons, consulting us for their own immediate interest, and often without the ordinary forms of courtesy?

It may, perhaps, be urged, that it is not reasonable to expect the directors to pay both their own medical officer, and the referee of the person to be insured. But if the information they seek be not worth a fee, they ought not to take the pains of applying for it. We presume, however, that we may fairly infer the contrary, from their importunity, and the selfish and eager spirit with which they seek to effect their purpose.

As to the possible frauds which the Editor thinks might be practised, if the companies were bound to pay the referees of applicants, and which he supposes to be a "fatal objection" to such an arrangement, we can only say, that we discern nothing either so very fatal or objectionable in the matter. Nobody will suppose that in such a case, the directors would be so simple as to accept *any* reference that might be tendered to them, or that they would not distinguish between the reputable, and the obscure or unauthorized, practitioner. There can be no difficulty in doing so. The three medical corporations, who license practitioners throughout the country, have their printed lists, which the directors can readily procure, and thus satisfy themselves respecting the trustworthiness of those to whom they apply, and send the proper fee. If they suffer themselves to be cheated by an unprincipled "Mr. A," or Mr. B." of whom there is no account in the regular lists, they act foolishly with their eyes open. That any trick of the kind suggested by our contemporary were likely to be attempted by a respectable and regularly licensed practitioner, is, we think, as little probable, as it is creditable to any member of the profession to believe in its possibility.

PAUPER MEDICAL CONTRACT SYSTEM.

CONDUCT OF CERTAIN INTERESTED PARTIES.

To the Editor of the Medical Gazette.

SIR,

I PERFECTLY agree with you respecting the distressing case of paupers, when you say that "a perseverance in the present order of things, prejudicial at once to the true interests of the state, and revolting to humanity, can only be attended with ruinous and fatal consequences." In this strong observation, applied to the contract system, I fully concur: but let us not do an injustice to the newly-constituted Board, or place *ourselves*, by-and-by, in the position of people who knew, or might have known, that the order of things which we now join in condemning, existed in its "revolting form" previously, and yet did not draw down our expressions of indignation, until an opportunity came of throwing upon others the blame that, properly, was due only to ourselves. For myself, I should be ashamed to be convicted of such an error, where I have, before my eyes, evidence sufficient to prevent it.

The following picture and history of

facts will be recognized by many of your readers, so that I do not think you will require me to give a "local habitation and a name."

The town in which I live is a parish containing 22,000 inhabitants. The number of paupers for the year 1834, was returned 3,015. Let us add to this the number of paupers belonging to other parishes, but attended to in this, and we shall find a heavy charge entrusted to *one* medical practitioner. Taking into account also the liberality with which the Overseers give 'doctors' tickets' to those who do not receive other relief, we may altogether estimate the annual number of *sick* paupers at something more than 1,500. In the year 1834, the surgeon contracted to take the parish for something less than 70*l*., but received altogether 100*l*. The following year, obeying the regularly descending progression, it was taken for 5*l*. This year the vestry, a *little* ashamed of this kind of Dutch auction, has very liberally made an advance upon the tender, and allowed the surgeon for physic, time, and skill, bestowed upon a number of paupers, equal to six of his Majesty's regiments, besides all strange paupers, and all out of our 22,000 who choose to get "doctors' tickets" from the Overseers, the all-sufficient sum of 50*l*.!!

Now as it would be easy to shew that the surgeon ought to have 1,500 patients, and as each patient should hardly have less than 1 shilling's worth of physic (averaging severe and trifling illnesses) the physic only ought to cost 75*l*. We might next proceed to the matter of time, only it would be a waste of our own, and shew that the surgeon's *day's* work, or nearly so, ought to be his attendance upon these profitable patients, who pay him there-for —what? *minus* 25*l*.

Whence originated this order of things "revolting to humanity," and what has maintained it up to the present day, and made every year from 1830 worse, and more "ruinous?" An unworthy competition;—and was there among the medical men no voice raised against its "fatal" tendency? One only. The person who now addresses you wrote a circular letter setting forth the evils of the farming system, and proposing the establishment of a Workhouse-Dispensary, to be attended gratuitously by a physician and surgeon, and by a paid medical officer, who should be so adequately remunerated for his services as to induce him to forego private practice, and devote himself to his public charge. What was the consequence? A meeting of the medical gentlemen; where, *although a unanimous vote of thanks was passed to the writer*, the contract system came off unconvicted of its now loudly proclaimed guilt.

The meeting sanctioned it, and it went on three years longer, until, in March last, the *same gentlemen* again met to condemn their own offspring, and propose another plan for attending upon the paupers, which, for reasons I would rather not express, I considered highly objectionable.

At this time, having had two years' acquaintance with the parish surgeon, and been in the constant habit of seeing patients with him, I had the opportunity of impressing my opinion upon that gentleman, that some further attendance upon the poor was desirable, and he fully concurred with me in opinion, that the appointment of a physician would be desirable. I therefore tendered my gratuitous services, on condition that the select vestry would officially appoint me as physician to the parish. I was informed by one of the overseers, that they had entered into my views, and, in consequence of such information, I visited the workhouse several times. In the meantime a new vestry was formed;—at a meeting of this body it was moved by a surgeon, who had lately been town doctor, and carried, &c. that Dr. ——'s services be accepted when the surgeon called for his assistance, but by *no means* otherwise; at the same time the surgeon was, I am told, taken to *task for undertaking an office to which he was not equal*. The result, and the object of this, was, of course, to prevent my visiting the workhouse, or taking any *cognizance* of the *condition* of the sick. I was forbidden to inquire out the cases that might be benefitted by my assistance, and, at the same time, the surgeon has been deterred from any longer calling for it, under the dread of being censured, and perhaps dismissed for incapacity.

Thus this select body, uninfluenced by the much censured commissioners, tender 50*l*. for physicking upwards of 3000 paupers; consequently, 25*l*., less than nothing, for taking care of them, and then considerately interfere to prevent these poor wretches from having any further advice than that which they had thus generously provided.

What is the inference from all this? I dare not draw it. But I do request of your readers, if such things exist where the new arrangements have not come into operation, or did before that time, not to act otherwise than as members of a *liberal* profession; to deal censure where it is due, to take *some* blame to ourselves, and not ungenerously, and (may I say it) disingenuously, to clamour against those who, after all, when they have done the worst, have only trodden in a beaten path.

I am, sir,
Your obedient servant,
JUSTITIA.

May 13, 1836.

ON A NEW MODE OF TREATING BURNS.

By Professor Velpeau.

M. Velpeau recognizes four degrees of burns: in the first there is simply rubefaction; in the second, vesication; in the third the rete mucosum and first layer of the true skin are involved; and in the fourth, a part or the whole thickness of the skin is converted into an eschar. If left to themselves, the first either terminates in resolution from the second to the eighth day; or changes into true erysipelas, or vesicates; the second rarely recovers in less than ten or twenty days, as the epidermis becomes detached and suppuration established; the third is followed by ulceration of the dermis, and the cure is delayed for a month or more; the slough is not detached from the fourth in less than ten or twenty days, nor is the ulcer healed under from two to six weeks. The merits of numerous remedies for burns are examined in relation to these degrees.

1. *Cold water.* This is useful only in the first degree, which it cures in three or four days.

2. *Methodical compression with a roller.*—This is still more useful in the first degree: in the second and third, the epidermis should be removed previously, the wound covered with linen in which numerous small holes have been cut, spread with cerate, and then covered with charpie. It then prevents erysipelas. In the same manner it is useful in the fourth degree.

3. *Cotton, or down of the typha.* These are useless in the first or fourth: employed early in the second and third degrees, they absorb all moisture, become dry, and a cicatrix forms beneath them, sometimes in a week or fortnight; but very often they form a crust, which does not prevent inflammation or suppuration manifesting themselves. It is a remedy of little value, except in some few situations or cases.

4. *The Solution of the Alkaline Chloride.* This acts much like cold water; but it also improves the state of the ulcerations. M. Velpeau has tried the chlorides of soda and lime in more than fifty cases, but thinks their value has been greatly exaggerated, and that they are merely good detersives.

5. *Saturnine Lotions.* These act in much the same way: they are more sedative and less exciting than chlorides.

6. *Linseed Poultices.* These are too much neglected: they calm irritation, remove the elevated epidermis, and diminish suppuration in young and sanguine habits: where they are not beneficial after a few days, their use should not be persevered in.

7. *Leeches.* These applied around eschars prevent or diminish inflammation and erysipelas.

8. *Liniment of equal parts of Oil and Lime-water.* This in superficial burns, particularly of the face, is very useful; the parts being anointed four or five times daily with a feather. No dressing is required: in five or six days large burns of the first, and some of the second degrees, have been cured by it.

9. *Strapping with Diachylon Plaster.* M. Velpeau originated this plan, and has pursued it with great success since 1832. It fulfils the same indications as compression, besides hastening greatly cicatrization. The first degree is constantly arrested by surrounding the burn in such a manner that the straps will remain seven or eight days, and without hindering the patient from performing his usual duties. In the second and third degree, the epidermis must be first removed, and the wound cleaned, and the strapping renewed every third, fourth, fifth, or sixth day: the cure almost constantly takes place from the fourth to the sixth day, in the second; and from the tenth, fifteenth, or twentieth, in the third degree. In the fourth degree it represses the surrounding inflammation; does not hinder the separation of the sloughs, and as they become detached it favours cicatrization. Each strap must be from three quarters to one inch in breadth, and long enough to make one turn and a half around the burned part; the first being placed an inch below, and the last an inch above it: they must overlap each other so that only one-third of each is exposed; they must be very evenly applied, so as to compress equally every part, and the ends must be crossed over the sound skin. If suppuration is profuse, they should be changed every two days, at first: in ordinary cases every three or four days is sufficient. In the fourth degree, before the eschars are detached, the straps should remain for five or six days; the discharge which escapes between them being absorbed by charpie, and the whole surmounted with some compresses and a roller: when changed, the wounds should be cleansed, and even washed with saturnine lotion. No portion of detached epidermis should be left. If the surface of the part burned is uneven, the inequalities must be filled with charpie, or compresses, placed between the strapping and the roller. This treatment is only applicable for the arms and legs, and must be suitably modified for the hands and feet. In very large burns it is not advisable, as the dressing would be inconvenient and difficult: some skins also will not bear it.

The composition of the plaister is important: the linen should be neither too

fine nor too coarse; neither too thickly or too thinly covered. That diachylon is best which has less resin and fat, and more lead. The effect of this treatment is astonishing. Burns of the limbs generally are cured in three or four dressings. The cicatrix in many respects is remarkable: it forms on all points of the surface, denuded to the second degree, at the same time; so that on the first or second removal of the straps it looks large, smooth, and supple, but firm. In the third degree the same thing is observed, the new skin forming in the centre of the suppurating wound, as well as around its edges. [M. Velpeau considers this remarkable, "*une particularité*," but John Hunter has described it as the usual mode in which ulcerations heal, where the *whole* thickness of the skin has not been destroyed.] If the ulcer is deeper, its edges soon subside, become white, and then prolonged by a kind of pale thin pellicle over the suppurating surface. The granulations become firm, and are soon replaced by an epidermic surface, even before the bottom of the wound is on a level with its edges, so that the cicatrix remains a long time depressed. As the cicatrix is not formed wholly from the circumference to the centre, and is soft, of equal thickness, and very extensible, it is free from bridles, and irregular and deformed lumps, which follow other modes of cure. As they are less exposed to break and to excoriate, the consecutive retractions are more often avoided.

The duration of the treatment is almost the same in large as in small wounds. When well done, it gives no pain nor irritation: no dressing is so pleasant; and immediate relief follows. As it is changed only every three or four days, it is extremely inexpensive.

The details of sixteen cases are given, illustrating the effects of this treatment, and proving the previous statements. Some of these also prove that cicatrization takes place as rapidly in an ulcer of some standing, as when the surface is first exposed. No other treatment but this is equally suitable in all stages. In order to discover on what the beneficial effects of this treatment depended, M. Velpeau made numerous comparative experiments: thus, to try if the compression was the agent, he tried on the same patient compression by bandages, covering the wound with different dressings, but the burns which were strapped healed more rapidly: he next tried strapping with other plaisters, but the diachylon succeeded much more rapidly: finally, he compared the effect of covering the burns with disks of diachylon and other plaisters, without making pressure; and they healed more rapidly under the use of diachylon, but less so than when pressure was used. The union of pressure and the diachylon plaister is therefore essential. It is needless to state that this is merely an application to burns of Baynton's mode of treating ulcers; M. Velpeau has, however, applied it to ulcerations of all kinds, and even to subcutaneous inflammations and indurations. He proposes to return to this part of his subject at another period.—*British and Foreign Medical Review, from the Revue Médicale Française et Etrangère, Juin et Juillet*, 1835.

DESCRIPTION OF A NEWLY INVENTED INSTRUMENT,

Applicable to the Cure of Fractures of the Jaw.

By Francis L'Estrange, A.M. M.R.C.S.

All practical surgeons have lamented the inefficacy of our means in adjusting or setting certain fractures of the lower jaw; indeed, the most simple are attended with a vast deal of troubled to the surgeon, and by no means proportionate advantage to the patients; for the patient is *bandaged up*, having some firm unyielding substance between his teeth, or the upper jaw is made the splint or support. In this latter case, it is obvious that the patient cannot take sustenance without displacing, more or less, the bandage, or by the extraction of one or more of the incisors. In any case it is extremely difficult to keep the mouth properly cleansed; but in fractures engaging the posterior part of the lower jaw, all our means of adjustment have been hitherto only partially successful, and considerable deformity continues. Now it is to fractures of this latter kind that I wish particularly to call the attention of the profession: two such fractures have lately occurred in this city, one under the care of the surgeon general in the Meath Hospital, the second under Professor Harrison, in the city of Dublin Hospital, which have succeeded quite to the satisfaction of both gentlemen. The apparatus employed for setting these fractures was an instrument invented by me, which, for simplicity and efficacy, is, I think, likely to prove of great advantage. In the application of this instrument, we have no occasion for bandages; we have a full view of the fracture, the patient can take any fluid, can express his wants, and the mouth can be cleansed at pleasure without interrupting the cure. I shall here give a short description of the instrument, and regret that it is not in my power at present to submit a drawing, as I was obliged to take it asunder to make some slight altera-

tions; but the principle on which the first was constructed shall be retained in the new instrument. I beg to premise a few observations on the nature of this fracture: it occurred between the tricuspidate or anterior molars; the anterior portion remained in its natural position, whilst the posterior was drawn considerably inwards towards the mesial line, so that the superior molars overlapped the inferior: it is therefere manifest, that if the fracture healed in this unnatural position, the food could not be masticated, or at least very imperfectly so at this side of the mouth. What, then, was to be done to obviate this deformity? Clearly to push outwards the posterior portion of the fracture, and to retain it in its normal situation till bony union had taken place. In this attempt I have succeeded by the instrument, the description of which I here subjoin, and hope in your next publication to be able to submit the drawing to your notice:—

The instrument is made of German silver, about four inches in length; it can be made to expand about three inches or more, and consists of a double pair of callipers, with a flat joint in the centre, which divides the instrument into two equal parts, which we may call the internal (as they are for the mouth), and external shanks: the internal are flat, bowed, taking the shape of the horizontal ramus of the lower jaw, and intended to lie on the teeth; the external shanks are bent downwards at an obtuse angle, to rest on the chin, with a screw attached, which *divaricates* or closes both shanks, as circumstances may require. To the internal edges of the internal shanks is attached a flat plate of silver of a semicircular shape, about an inch in length and half an inch in depth: to the external surfaces of these plates are soldered, at their inferior edges, a short silver pin, set off at right angles, which is intended to pass between the interstices of any two teeth, for the purpose of fixing the instrument, and preventing its displacement by the gangrene. Its mode of application is very simple: the internal shanks are introduced closed into the mouth, by using the screw attached to the external; the internal legs are divaricated, and the silver pin fixed in the interstices of the opposite and corresponding teeth. As the internal shanks expand, they force outwards the posterior portion of the fracture till it is adjusted to the anterior portion. The internal shanks of the instrument remain in the mouth without inconvenience to the patient, as they do not interfere with the motions of the tongue; and the lips being brought together at pleasure, prevent the overflow of saliva.

In conclusion, I may here observe, that this instrument is also applicable to the treatment of the simple fracture, where the portions deviate merely from the same horizontal plane; but in this latter species of fracture, we require as an auxiliary an instrument which I invented some years ago; but of this more on a future occasion.—*Dublin Journal*, May, 1836.

REMARKABLE BIRTH-DAYS.

Dr. Graves (Dublin Journal) has selected from some of the German almanacks, a list of birth-days of eminent living authors. The following are probably the most remarkable amongst them:—

Blumenbach, Gottingen, May 11, 1752.
Tiedemann, Heidelberg, Aug. 23, 1781.
Trommsdorf, Erfurt, Apr. 2, 1770.
Rose, Berlin, Aug. 6, 1796.
Mitscherlich, Berlin, Jan. 17, 1794.
Ehrenberg, Berlin, Apr. 19, 1796.
Rust, Berlin, Apr. 5, 1775.
Callisen, Copenhagen, Apr. 8, 1786.
Himly, Gottingen, Apr. 30, 1762.
Gräfe, Berlin, Mar. 8, 1787.
Carus, Dresden, June 3, 1789.
Burdach, Königsberg, June 12, 1776.
Weber, Leipzig, June 24, 1796.
Schultz, Berlin, July 8, 1796.
Valentin, Breslau, July 8, 1810.
Nägele, Heidelberg, July 12, 1778.
Müller, Berlin, July 14, 1801.
Hufeland, Berlin, Aug. 12, 1762.
Oppenheim, Hamburg, Oct. 5, 1799.
Purkinje, Breslau, Oct. 17, 1790.
Brandes, Salzuflen, Oct. 18, 1795.
Ideler, Berlin, Oct. 25, 1787.
Langenbeck, Göttingen, Dec. 8, 1776.
Hecker, Berlin, Jan. 5, 1795.
Froriep, Berlin, Feb. 21, 1804.

DEAFNESS CURED BY GALVANIC CURRENTS.

At a recent sitting of the Academy of Sciences, M. Magendie gave an account of a young Polish officer who, at the battle of Ostrolerka, in charging a battery which fired cannon shot, was struck down, though he received no bruise in any part of his body; he remained senseless for nearly half an hour. On reviving a little, it was found that he had lost his hearing, speech, and taste. He was for some time treated at Vienna with repeated bleedings and counter-stimulants, but without success; at Trieste, strychnine was employed by the endermic method, just as fruitlessly. He then came to Paris, where M. Magendie proceeded to remedy the deafness by galvanic currents, one of the wires of the pile being applied over the chorda tympani. At the very first trial an encourag-

ing effect was produced: the patient heard a loud buzzing noise in his head. At the third application the sense of taste began to be re established,—a fact of much interest for the anatomist and physiologist, as it throws light on the origin of the chorda tympani and the functions of the fifth pair. After seven or eight applications of the same sort, the patient could hear a drum, a bell, and at last the human voice. Still, however, the tongue is incapable of voluntary movement, though it is expected that the cure will be eventually complete by the means already adopted, and applying the conducting wires to the laryngeal nerves.—*Gaz. des Hôpitaux.*

TORSION OF ARTERIES IN OPERATIONS ON THE NECK OF THE UTERUS.

M. Amussat has communicated to the Royal Academy of Medicine the details of an operation in the neck of the uterus, in which extirpation was performed for cancerous disease; a strong jet of arterial blood occurring, M. Amussat seized the vessel, and performed torsion with instantaneous success. He is the first surgeon who has thus operated on the uterine arteries. It is of importance that the vessel should at once be seized, for if the uterus be allowed to re ascend, it becomes extremely difficult to discover the orifices of the divided arteries.—*Archives Générales.*

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, May 10, 1836.

H. Earle, Esq., F.R.S., President, in the Chair.

The evening was occupied with the reading of an interesting and valuable paper by Sir Benjamin C. Brodie, on *Injuries and Diseases of the Spinal Marrow.* As the concluding portion of the paper is reserved for Tuesday next, we shall reserve our account of it for another occasion.

NEW MEDICAL WORKS.

Outlines of Human Pathology. By H. Mayo, F.R.S. &c. 8vo. 18s. cloth.

Lee's Celsus, Latin and English; with Order of Construction, &c. Vol. 2, 8vo., 18s. bds.

An Introduction to Phrenology, in the form of Question and Answer. By Robert Macnish. 18mo. pp. 186, 2s. 6d.

The Practical Anatomy and Elementary Physiology of the Nervous System; designed for the Use of Students in the Dissecting room. By F. Le Gros Clark, Demonstrator of Anatomy in St. Thomas's Hospital. 1 vol. 12mo.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

May 19, 1836.

George Pink, Eastmeon.
Robert Wright, Rastrick, Halifax.
Samuel Barrett, Bideford.
William Strong, Bridport, Dorset.
Arthur Beroni Evans.
Arthur Tibson.
John Blackburn, Liverpool.
James Johnson, Lancaster.
Samuel Harris, Fenchurch street.
William Price Evans, Crickhowel, Breconshire.
James Bower Harrison, Manchester.
Edward Morse, Norwich.

WEEKLY ACCOUNT of BURIALS,

From Bills of Mortality, *May* 17, 1836.

Abscess	4	Hooping Cough	8
Age and Debility	47	Inflammation	34
Apoplexy	7	Brain	2
Asthma	30	Lungs and Pleura	6
Cancer	3	Influenza	1
Childbirth	6	Insanity	6
Consumption	67	Liver, diseased	8
Convulsions	28	Locked Jaw	1
Croup	4	Measles	3
Dentition or Teething	7	Mortification	2
Diarrhœa	1	Paralysis	5
Dropsy	18	Rheumatism	1
Dropsy on the Brain	19	Scrofula	1
Dropsy on the Chest	3	Small-pox	2
Erysipelas	3	Spasms	1
Fever	5	Thrush	1
Fever, Scarlet	4	Tumor	2
Fever, Typhus	1	Unknown Causes	27
Gout	1		
Hæmorrhage	2	Casualties	11
Heart, diseased	3		

Increase of Burials, as compared with the preceding week . . } 117

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

May, 1836.	Thermometer.		Barometer.	
Thursday . 12	from 34 to 67		30 08 to 30 22	
Friday . . 13	33	70	30·22	30·28
Saturday . 14	36	68	30 40	30 48
Sunday . . 15	34	70	30 48	30·44
Monday . . 16	36	73	30·42	30 44
Tuesday . . 17	38	71	30 43	30 42
Wednesday 18	39	70	30·31	30·24

Prevailing winds, W. by S., E. by N., and E. by S.
Generally clear.

Charles Henry Adams.

NOTICE.

Mr. Blyth's letter has reached us, but we cannot give it insertion: controversial matter, without any new facts, would afford but little entertainment to our readers. Besides, Dr. Cowan would be entitled to a second reply.

The papers of several correspondents have been received: next week they shall be more fully acknowledged.

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THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, MAY 28, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XXXV.

Copper, and its *preparations*, next deserve our notice.

COPPER.

History. — Cuprum, or copper, received its name κύπρος, from the island of Cyprus, where it was first discovered, or at least worked to any extent. It seems to have been known in the most remote ages of antiquity, for Moses speaks of brass (an alloy of copper and zinc). The alchymists called it Venus, "that is," says Boerhaave, "*meretrix publica*, a common prostitute, in consequence of its solubility in so many liquids."

Native state.—It is met with in both the organized and inorganized kingdoms. Thus it has been found in the *delphinium staphisagria*, *krameria triandria*, *conium maculatum*, and many other plants. The ores of this metal may be arranged under seven heads—*native copper*, *the oxides*, *the sulphurets*, *the seleniuret*, *arseniet*, *chloride* or *muriate*, and the *oxysalts* of copper (namely, the carbonate, arseniate, phosphate, sulphate, and silicate).

Preparation. — Copper is obtained by roasting the sulphuret, and afterwards smelting; these processes are repeated several times until the metal becomes sufficiently pure. It is then refined or toughened by melting and stirring with a birch pole.

Properties.—It is a crystallizable, brilliant, red metal, having a specific gravity of 8·895; malleable and ductile; it has a nauseous, styptic taste, and a peculiar disagreeable smell. Chemists are not agreed as to its atomic weight: Dr. Thomson adopts 32, and I shall follow him.

Characteristics.—Copper is easily recognized by its colour, by its communicating a green tinge to flame, and by its solution in nitric acid, possessing the following properties: it is blue, or greenish blue; potash, or soda, occasions a blue precipitate of the hydrated peroxide of copper; a small quantity of ammonia produces a similar bluish white precipitate, but an excess redissolves it, forming a deep blue liquid: ferrocyanuret of potassium occasions a reddish brown precipitate of the ferrocyanuret of copper; the hydrosulphurets throw down the black sulphuret; and, lastly, a polished iron plate plunged into the liquid, becomes covered with copper.

Physiological effects.—Metallic copper appears to produce no pernicious effects when taken internally, so long at least as it retains its metallic state, as many cases are recorded where coins of this metal have been swallowed and retained for a considerable time without any ill effects arising, and Drouard gave as much as an ounce of finely powdered copper to dogs of different ages and sizes, but none of them experienced any inconvenience.

Notwithstanding these facts, however, various effects have been attributed to it. Thus, Cothenius says, copper filings operate by stool, urine, and saliva, and the late Professor Barton was accustomed to relate an instance of a child, who, having swallowed a cent, continued for some time to discharge several pints of saliva. Lastly, Portal mentions a case in which copper filings, incorporated with crumb of bread, acted powerfully on the system. I have no doubt but that the effects here mentioned arose from the oxidation of the metal by the acids of the alimentary canal.

Use.—Copper filings, in doses of three or four grains, were formerly used in rheumatism, and also as an antidote against the effects of the bite of a mad dog.

Cupreous Preparations.

Physiological effects.—Before examining the preparations of copper individually, I shall speak of them collectively. Copper is a metal readily oxidated, and in the form either of oxide or salt is a powerful poison. Acid, alkaline, saline, and fatty bodies, promote its oxidation when placed in contact with it in the air, and by dissolving a portion of the newly formed oxide, acquire poisonous properties.

If the cupreous preparations be used in *very small* doses, they sometimes give relief in certain diseases (principally of the nervous system), without obviously affecting the functions; in other words, in these instances the only apparent effect is the modification observed in the morbid condition. These are the cases in which these preparations have been termed *tonic*, *antispasmodic*, or *alterative*, according to the nature of the disease; thus, in ague they have been termed tonic, in epilepsy antispasmodic, in dropsy alterative. The beneficial operation is presumed to be owing to some influence exerted by the remedy over the nervous system. The effects produced by the long-continued use of small doses of the preparations of copper have not been satisfactorily determined; they are said to be various affections of the nervous system (such as cramps or paralysis), alteration of the colour of the skin, chronic inflammation of the respiratory and digestive apparatus, slow fever, and wasting of the body. These symptoms constitute what has been termed *slow*, or *chronic poisoning by copper*. The smelters and workers in copper do not suffer from the vapour or emanation of this metal, as the workmen employed in the preparation of mercury, of arsenic, or of lead, do, from the vapours of these metals; this, indeed, might be expected, when we consider how much more volatile the latter and their preparations are, than copper and its compounds. In *larger*, or full medicinal doses, these remedies act as *emetics*, exciting speedy vomiting, with less nausea than tartar emetic produces. In *still larger* quantities these bodies act as poisons, giving rise to gastro-intestinal inflammation, and disordering the functions of the nervous system (especially the cerebro-spinal portion), constituting *acute poisoning by copper*. The usual symptoms are, a coppery taste, eructations, violent vomiting and purging, griping pains, cramps in the legs and thighs, headache, giddiness, convulsions, and insensibility: jaundice is occasionally observed. In some cases the cerebro-spinal symptoms precede those which indicate inflammation of the alimentary canal. In experiments made on animals, it has been observed that death was sometimes produced, without any marks of local irritation; the symptoms being those indicative of a disordered condition of the nervous system. By some toxicologists these preparations are ranked among the *irritant* poisons, though Buchner, judging from Reiter's experiments, terms them *astringent*.

Drouard, and others, were of opinion that the preparations of copper do not become absorbed, but Lebkuchner has detected copper in the blood of the carotid artery of a cat, into whose bronchial tubes he had injected four grains of the ammoniacal sulphate; and Wibmer has found it in the liver of animals to whom he had given the acetate for several weeks.

Post-mortem appearances.—In animals killed rapidly by these poisons, no morbid appearances are found, in consequence of death being produced by their action on the nervous system; but when the death was slow, marks of gastro-intestinal inflammation, and occasionally indications of inflammation of the brain, have been observed.

Uses.—These preparations are used both as external and as internal remedies; externally as stimulants, astringents, styptics, and caustics; internally, as emetics and tonics, or antispasmodics. The particular cases will be noticed in speaking of the individual preparations.

Antidotes.—The chemical antidote for the cupreous preparations is *albumen*; hence, the whites of eggs, and in the absence of these, milk, or even wheaten flour, should be employed. *Iron filings* have been proposed by Navier, by Payen and Chevallier, and subsequently by Dumas and Milne Edwards. The iron decomposes the cupreous salt, and precipitates the copper in the metallic (and, therefore, in an inert) state. The *ferrocyanuret of potassium* is also said to be a good antidote: a drachm or two of it may be taken with safety, for it is not so poisonous as was at one time imagined. *Sugar* was proposed by Marcelin Duval as an antidote; its efficacy, though denied by Orfila and Vogel, has been lately reasserted by Postel. The alkaline sulphurets formerly used are worse than useless, since they are active poisons. The inflammatory symptoms are of course to be subdued by the usual means.

Sulphate of Copper.

History and synonymes.—It was known to the Greeks and Romans, and is mentioned by Pliny. It has had various names, as *blue vitriol*, the *deuto-* or *bi-sulphate of copper*, &c.

Native state.—In copper mines, the sul-

phuret of copper becoming oxidized by the combined influence of the air and water, is converted into the sulphate, which is found dissolved in the waters in, or issuing from, these mines; these cupreous solutions are termed *waters of cementation*.

Preparation.—One method of obtaining this salt is to evaporate the water issuing from copper mines. Another, is to roast copper pyrites, lixiviate the residuum with water to dissolve the sulphate formed, and then crystallize. Other methods are sometimes followed, but I do not think it necessary to detail them.

Properties.—This salt occurs in fine blue crystals, the primitive form of which is the doubly oblique prism. Its taste is styptic and metallic. When exposed to the air the crystals effloresce slightly, and become covered with a greenish white powder; when heated they give out water, and, if the temperature be sufficiently high, the acid is expelled, leaving the oxide of copper. One part of this salt requires nearly twice its weight of water at 60° to dissolve it.

Composition.—It is composed of—

1 atom peroxide copper ..	=	40
1 atom sulphuric acid....	=	40
5 atoms water .... 5 × 9	=	45
		125

Its symbol, therefore, is, $\dot{Cu}\ \dddot{S}\ 5\dot{H}$.

Characteristics.—These are the tests for sulphuric acid, and for the cupreous preparations, before mentioned.

Physiological effects.—In *very small doses* it has no sensible operation on the body, though it occasionally ameliorates certain diseases, such as epilepsy and ague; and it has been denominated in these cases antispasmodic and tonic. In *larger doses* it is a safe and useful emetic, acting very speedily, and without exciting any great disorder of the general system. In *excessive doses* it becomes a poison, producing inflammation of the alimentary canal, and disordering the functions of the nervous system, as noticed when speaking of the cupreous preparations generally. The *local* action of this salt is astringent, styptic, and caustic.

Uses.—As an *external* agent, we often use it in substance as an application to ulcers, either for the purpose of repressing excessive soft and spongy granulations, commonly denominated "proud flesh," or of hastening the process of cicatrization; and for either of these purposes it is one of the best agents we can employ. Solutions of it are frequently applied to mucous membranes, to diminish excessive secretion: thus to the conjunctiva, in chronic ophthalmia, and to the mucous lining of the vagina or urethra, in discharges from these parts. In superficial ulcerations of the mucous membranes (especially of the mouth), one or two applications of the sulphate of copper, in substance, are generally sufficient to heal them. As a styptic, a solution of this salt is sometimes used to repress hæmorrhages from a number of small vessels. Rademacher applied with good effect brandy impregnated with sulphate of copper, in a case of alopecia, or baldness, which occurred in a young man.

Internally it is employed as an *emetic*,—for example, in narcotic poisoning; but for ordinary purposes it is less adapted for exciting vomiting than many other emetics, particularly tartarized antimony. As an *astringent* it is used in chronic ulceration of, and increased secretion from, the mucous membrane lining the alimentary canal; and also to check excessive secretion from the mucous lining of the bronchial tubes and cells. In repeated small doses it has likewise been used in epilepsy, chorea, ague, dropsy, &c.

Administration.—The dose of it, as an emetic, is from three or four grains to fifteen; as an astringent or tonic, from a quarter of a grain to one or two grains. Solutions used for external purposes vary considerably in their strength in different cases, but usually from one or two grains to eight or twelve, dissolved in an ounce of water.

Cuprum Ammoniatum.

History.—This compound was introduced into practice in this country by Dr. Cullen.

Preparation.—In the London Pharmacopœia it is prepared by rubbing half an ounce of sulphate of copper with six drachms of the hydrated sesquicarbonate of ammonia until effervescence ceases, and then drying the ammoniated copper, wrapped in bibulous paper, with a gentle heat.

Theory.—The above proportions are very nearly two atoms of the sulphate, and six atoms of the sesquicarbonate. When the two salts are rubbed together, part of their water of crystallization is set free, which renders the mass moist; at the same time a portion of the carbonic acid of the sesquicarbonate of ammonia escapes, producing the effervescence alluded to; and the compound becomes of a deep azure-blue colour. The further changes are not accurately ascertained; it is probable, however, that the sulphate of copper is deprived of part of its sulphuric acid by the ammonia combining with it to form sulphate of ammonia; which combines with the

subsulphate of copper, thus produced, to form a *double sulphate of copper and ammonia*. There is, however, an excess of the sesquicarbonate of ammonia, and it is not improbable that this may combine with some oxide of copper to form a *double carbonate of copper and ammonia*.

Properties.—This compound has a deep blue colour, a styptic metallic taste, and an ammoniacal odour. It is soluble in water; but unless there be an excess of the sesquicarbonate of ammonia, the solution, if much water be present, deposits some hydrated oxide of copper.

Composition.—This compound consists of—

Oxide of copper.
Ammonia.
Sulphuric acid.
Carbonic acid.
Water.

But the proportion of these ingredients, and their mode of combination, are not ascertained. It is probably a mixture of *cupreous sulphate of ammonia*, and the *cupreous carbonate of ammonia*.

Characteristics.—The odour of this compound (which is increased by the addition of caustic potash or lime) will easily detect ammonia. A solution of it may be shewn to contain sulphuric acid by the addition of a barytic salt (chloride or nitrate). The presence of copper may be determined by the colour of the preparation, and partly by applying the tests for copper already described.

Physiological effects.—The operation of this preparation is for the most part the same as the sulphate, with the exception, perhaps, that its local action is less powerful, so that somewhat larger quantities of it may be taken at a dose.

Uses.—It has been employed *locally* in the form of solution, as a collyrium, in opacities of the cornea. *Internally* it has been used in affections of the nervous system, from its supposed specific action on this part; thus in epilepsy, catalepsy, chorea, spasmodic asthma, cramps of the stomach, &c. It has also been administered in ague, in dropsy, and as a preservative from the effects of the bites of rabid animals.

Administration.—It may be administered internally in doses of half a grain, gradually increased to five grains. In the Pharmacopœia there is a *solution* for external purposes, composed of a drachm of the ammoniated copper to a pint of distilled water; but it requires dilution before applying it.

Verdigris, or the Subacetate of Copper.

History and synonymes.—This salt, termed sometimes *ærugo*, or, *rough verdigris* (to distinguish it from another acetate presently to be mentioned), was known to the ancients.

Preparation.—At Montpellier it is thus made: the refuse of grapes is allowed to ferment with sour wine, and is then laid in alternate strata with plates of copper. In about fifteen days these plates are covered with the acetate of copper; they are then wetted, and exposed for a month to the air; the acetate absorbs the water, and uniting with more oxide of copper forms a subacetate, which is scraped off, and packed in leathern sacks for exportation. At Grenoble, verdigris is obtained by sprinkling plates of copper with ready-made vinegar.

Properties.—It is met with in a pulverulent or massive form, of a blue or rather greenish-blue colour, varying somewhat in its tint. Its taste is astringent and metallic; its odour is somewhat similar to that of acetic acid, but more disagreeable.

Composition.—It is essentially a compound of acetic acid and oxide of copper; but it sometimes contains also carbonic acid. Dumas says, when verdigris is of a light blue colour, it is a *subsesquiacetate*; but when greenish, a *diacetate*. Both kinds are *hydrates*.

Characteristics.—When digested with strong sulphuric acid it evolves the odour of acetic acid. If boiled in distilled water a solution is obtained, known to contain copper by its colour, and by the tests already mentioned for the cupreous preparations.

Physiological effects.—The action of verdigris on the system is very similar to that of the other preparations of copper: thus, taken in small and repeated doses, it appears to act on the nervous system; in larger doses it operates as an emetic; and, in excessive doses, is a powerful poison, producing both gastro enteritis (indicated by vomiting, purging, and pain), and an affection of the nervous system, marked by insensibility, convulsions, and even tetanus.

Uses.—The operation of verdigris on the system being somewhat variable, it is rarely administered by the stomach. As an external application, it is used in the form of powder, of cerate or ointment, and of oxymellite. The *powder* is sprinkled over foul and indolent ulcers, or, mixed with powdered savin, is applied to destroy venereal warts. The *oxymellite of verdigris*, formerly termed *mel Ægyptiacum*, and now called in the Pharmacopœia the *linimentum æruginis*, is employed to stimulate ill-conditioned sores; thus it is applied to the venereal ulcers of the throat, by means of a camel's hair pencil, or diluted with water and used as a gargle.

PLUMBUM, OR LEAD.

History. — This metal, termed by the Greeks μολιβδος, or μολυβδος (whence, probably, the Latin term *plumbum*) appears to have been known at a very early period, for Moses, in the nineteenth chapter of Job, alludes to it, as being used for making inscriptions on—a practice which seems at one time to have been in general use among the orientalists, for Mr. Taylor has referred to accounts of several books of lead found in Eastern countries.

Native state.—Lead is found in the *metallic* state, in the form of *oxide* (both free and combined, as in the *oxy-salts*), *sulphuret*, *seleniuret*, and *chloride*.

Extraction.—It is extracted from the sulphuret called *galena*, which is first roasted in reverberatory furnaces, by which means it is converted into a mixture of sulphate and oxide, and then smelted with lime and coal (the first acting as a flux, the second as a deoxidizing agent.)

Properties.—The physical properties of lead are too well known to require much description. By exposure to the air, it becomes tarnished by the formation of a thin coat of oxide, which, uniting with carbonic acid, forms the carbonate.

Pure distilled water has no action on lead, if the gases (as air and carbonic acid) be excluded; but if these be admitted, a thin crust of carbonate is soon formed. It is remarkable that the presence of most neutral salts—sulphate of soda and chloride of sodium, for example—impairs the corrosive action of air and water. Hence, therefore, we can easily comprehend the reason why leaden cisterns and pipes do not more frequently give a metallic impregnation to water; and why rain-water is more apt to become impregnated with lead than spring-water. The latter, however, by long keeping in leaden vessels, may also become contaminated with lead.

Characteristics.—If lead be dissolved in nitric acid, we may easily recognize its presence in the solution by the following characteristics: — Alkalies, their carbonates, sulphuric acid and the sulphates, and ferrocyanuret of potassium, produce white precipitates when added to the solution; chromate of potash and iodide of potassium occasion yellow precipitates; sulphuretted hydrogen and the hydrosulphurets form black precipitates of the sulphuret of lead; lastly, a piece of zinc throws down metallic lead in an arborescent form.

Physiological effects.—I believe, that so long as lead retains its metallic form, it is inert. In a French journal, we are told that three ounces and six drachms of this metal have been given to a dog without any obvious effects. As, however, it is a metal which is readily oxidated, it occasionally proves active when swallowed, in consequence of its being acted on and oxidized by the contents of the alimentary canal. An instance of this kind is mentioned by Paulini, in which colic was produced by swallowing a leaden bullet. Proust says, that the alloy of lead and tin may be swallowed with impunity, in consequence of its being much less easily oxidated than the pure metal.

Use.—Metallic lead is now never employed in medicine, though balls of this metal were formerly exhibited in ileus.

Preparations of Lead.

Physiological effects.—The preparations of lead are, for the most part, energetic poisons. The *sulphuret*, however, appears to be inactive, or nearly so; for Orfila have given an ounce of it to dogs without observing any ill effects; four ounces have even been given to horses without any unpleasant results. Mr. Braid states, that the workmen who dig and pulverize the ore (sulphuret of lead), at the lead-mills, in Lancashire, never have the lead colic until they work at the smelting furnaces. *Sulphate of lead* is also inactive, or nearly so; at least, Orfila gave large doses of it to dogs with impunity.

Most, if not all, the other preparations are more or less active; the effects and symptoms, however, vary with the dose.

In *small doses* these preparations act on the alimentary canal as astringents; checking secretion and causing constipation. These may be regarded as the local effects. When absorbed, the constitutional effects of lead are observed: the arteries become reduced in size and activity, for the pulse becomes slower and smaller; the temperature of the body is diminished; and sanguineous discharges, whether natural or artificial, are frequently checked, or even completely stopped. This constringing and sedative effect seems extended to the secreting and exhaling vessels; the discharges from the mucous membranes, the exhalation from the skin, and the urine, being diminished in quantity. Thus we observe dryness of the mouth and throat, thirst, greater solidity of the alvine evacuations, diminution of the bronchial secretion, and of cutaneous exhalation, which is particularly noticed in patients suffering with colliquative sweating. From all these circumstances, it would appear these preparations give rise to a contracted state of the coats of the blood-vessels (at least of the arteries). It is not at all improbable that the coats of the absorbents are similarly affected, as has been asserted. If this be the case, some obstruction would probably be offered to the passage of lymph; the

functions of absorption would be carried on with less energy, and the lymphatic glands would perhaps become in consequence affected. The wasting of the body produced by lead in these small doses, has been denominated *tabes saturnina*, or *tabes sicca*.

The long-continued use of the preparations of lead rarely fails to give evidence of its effect on the muscular and nervous systems; and which is manifested by a curious train of symptoms, commencing with colic, and terminating in palsy or apoplexy. *Lead* or *painter's colic* is variable in its mode of attack; at one time commencing suddenly, and without any very marked premonitory symptoms, at another being preceded by dyspeptic symptoms—such as diminished appetite, with a painful and constipated state of the bowels, the fæces being very hard. During an attack, there is usually obstinate constipation, with acute pain, much increased at intervals; but sometimes a relaxed condition of the bowels has been met with. Merat refers the continued pain to the small intestines, while the more violent and intermitting kind resides principally in the transverse portion of the colon. Pressure rarely increases, and very commonly relieves, the pain. Cases, however, do occur (and I have seen several) in which there is great tenderness of the bowels. The abdomen is strongly retracted, sinks in about the navel, and feels very hard. To these symptoms may be added vomiting, cramps of the lower extremities, hard and generally slow pulse, though sometimes it has been found frequent.

Merat says, that on examining the bodies of patients who have died affected with lead colic, he found a contracted condition of the colon, and this he considers to be the seat of the disease; but the observations and reasoning of Dr. Abercrombie on ileus render Merat's opinion doubtful. It appears that, in fatal cases of ileus, one part of the intestine is generally found in a state of distention, and another part empty and collapsed, presenting nearly the form of a cord; and several reasons which you will find detailed in Dr. Abercrombie's work lead us to conclude that the collapsed or contracted state is the natural condition of healthy intestine when empty, and that the distended portion is the primary seat of the disease, the distention arising from a paralytic condition of the muscular fibres, whereby it is unable to contract and propel its contents onward. Now this view of the case is the more probable, since the action of lead on the muscular fibres of the intestine is regarded as of the same kind as that on the fibres of the voluntary muscles afterwards produced. Moreover, I ought to add that this contracted condition of the intestinal tube has not always been found after death from colica pictonum. Andral and Louis have reported cases in which no lesion could be discovered; some have found intus-susception, others have noticed marks of inflammation.

Another effect of poisoning by lead is an affection of the cerebro-spinal system, generally manifested by *paralysis*, but occasionally by giddiness, convulsions, and coma, and now and then by apoplexy. The palsy may occur without colic, or it may come on while the patient is suffering with it, but in general it succeeds colic. It may happen in both upper and lower extremities, though more frequently in the former; and it affects the extensor more than the flexor muscles, so that the hands are generally bent on the arms, which hang dangling by the side. Frequently pain is experienced in the paralyzed part, and sometimes in the region of the spine also. On examining the bodies of persons who have died with this disease, no lesion has hitherto been discovered in the spinal marrow. The muscles of the affected limb are observed to be wasted and very pale, and have sometimes the appearance of a white fibrous tissue.

In *very large doses*, some of the plumbeous preparations (the acetate, for example) act as irritant poisons; giving rise to the usual symptoms indicative of gastro-enteritis. However, none of them equal, in the intensity of their local action, the mercurial or even the cupreous compounds.

Modus operandi.—There are some theoretical points connected with the operation of lead, which I now proceed to examine. And in the *first* place, *do the active salts of lead become absorbed?* Analogy would lead us to answer this question in the affirmative; and Tiedemann and Gmelin have proved the truth of this presumption, by detecting lead in the blood of the splenic, mesenteric, and hepatic veins of dogs killed by the acetate of lead; and they also found it in the contents of the stomach and intestines, but neither in the chyle nor urine. Wibmer has detected it in the liver, the muscles, and particularly in the spinal cord. In the *second* place, *on what parts of the body do these preparations exert any specific influence?* Principally, I believe, on the nervous system; for several circumstances lead us to suspect that lead colic even is primarily an affection of the nervous system; perhaps of the ganglionic or spinal portion, and that the affection of the muscular fibres of the intestine is secondary. That the spinal marrow becomes subsequently affected seems proved by the paralysis of

the extremities, and the pain in the course of the spine. In the latter stages, however, the brain appears to be affected: hence the occasional giddiness, coma, or apoplexy.

The constitutional effects of lead may be produced in various ways; as, when taken with articles of food and drink into the stomach; when inhaled in the form of dust or vapour with the air; when applied to mucous membranes, ulcers, &c. Hence the persons most liable to these effects are those whose occupations bring them in contact with this metal; for example, painters, plumbers, roasters and smelters of lead, the manufacturers of the plumbeous preparations, glass-blowers, potters, lapidaries, &c.

Dr. Anthony Todd Thomson* is of opinion, that carbonate of lead is the only preparation of this metal that can produce colic; and though he has, I think, clearly shewn that lead colic more frequently arises from the carbonate than from any other salt of lead, he has, in my opinion, failed in proving that no other preparation of lead *can* produce it. Indeed, if his opinion were true, it would constitute an exception to the general effects of the metallic preparations; for we do not find that the specific effects of arsenic, or of mercury, or of copper, or of antimony, are produced by one preparation only; so that, *à priori*, analogy is against the opinion. Furthermore, it is well known that the vapour of the oxide of lead taken into the lungs may produce colic, and that the ingestion of the acetate, citrate, or tartrate of lead, is capable of exciting the same effect. Now Dr. Thomson explains these facts by assuming that the oxide of lead unites with carbonic acid in the lungs, and thus is converted into carbonate; and that the acetate, citrate, and tartrate, are decomposed in the alimentary canal, and converted into carbonates. But it appears to me much more simple and consistent with analogy, to admit that these preparations are of themselves capable of producing colic, than to assume that they undergo the changes here supposed. Moreover, in some instances in which colic was produced, it is unlikely that these changes could have occurred, owing to the excess of acid taken with the salt of lead.

The *uses* of the preparations of lead will be best discussed in speaking of the individual compounds.

Antidotes.—Poisoning by lead usually puts on one of three forms, *irritant poisoning*, *lead colic*, and *paralysis*.

1. *Irritant poisoning.*—Administer diluents, holding in solution some sulphate, (as sulphate of soda, of magnesia, or of potash or alum) so that a sulphate of lead may be formed. If vomiting have not already come on, tickle the throat, and administer emetics of the sulphate of zinc or of copper, or the stomach-pump may be employed.

2. *Lead colic.*—In this country lead colic is usually treated by the combined use of purgatives and anodynes, the purgatives being either castor oil, or salts and senna, the anodyne being opium. When the vomiting is very troublesome, and liquid medicines do not remain on the stomach, we may give the compound extract of colocynth, with opium, in the form of pill. In several cases in which the pulse was full and strong, the face flushed, and the tongue furred and dry, I have used bloodletting with evident advantage. The sulphates have been recommended, as also mercury.

3. *Lead paralysis.*—Nux vomica, and its active principles strychnia and brucia, are perhaps of all internal remedies most deserving of trial, because of their specific effect on the spinal marrow; and the chance of their success is, of course, much increased by the circumstance of there being no discoverable lesion of this portion of the nervous system. Mercury is another remedy that has been recommended. Various local measures have been tried, but without much benefit; for example, electricity, and irritants, such as ammonia and cantharides.

Litharge, or Semi-vitrified Oxide of Lead.

History. — This compound has been known from the most ancient times. It seems to be the substance which Pliny, in one part of his work, (Lib. xxxiv. 53) terms *molybdæna*.

Preparation. — Litharge is usually a secondary product obtained during the cupellation of argentiferous lead. This process you will find described in Watson's Chemical Essays.

Properties.—It occurs in the form of small yellow or reddish scales or flakes. According to its colour, it is termed either *silver* or *gold litharge*.

Composition.—It consists essentially of the protoxide of lead, which is composed of

1 atom lead	104
1 atom oxygen....	8
	112

But it is not impossible that the redder kinds may contain a small portion of peroxide of lead in combination with some protoxide, forming a kind of plumbate of lead.

* See MEDICAL GAZETTE, vol. v. p. 538; and vol. x. p. 689.

Characteristics.—Heated on charcoal by the blowpipe, it is readily reduced to the metallic state. Digested in nitric acid, we obtain a solution which may be easily recognized to contain lead, by the tests already mentioned for this metal.

Physiological effects.—Inhaled in the form of vapour or fine dust, it is capable of producing the constitutional effects of the preparations of lead already described. The effects of this preparation when swallowed are but little known. From its external use, ill consequences have sometimes resulted.

Uses.—In medicine it is principally employed in the production of the *subacetas*, and *emplastrum plumbi.* It has been applied to ulcers as a desiccative. A mixture, or rather compound, of litharge and quicklime, is employed to dye the hair black. The proportions vary from one part of each, to three parts of litharge and two of lime. Sometimes carbonate of lead is substituted (partially or wholly) for the litharge. The mixture is made into a paste with hot water, and applied to the hair for four or five hours. The water causes the oxide of lead and lime to unite, and form a kind of saline compound, called *plumbite of lime:* the lime is useful in removing the fatty matter of the hair, while the oxide of lead forms with the sulphur contained in the hairs a black sulphuret of lead.

Oleo-margarate of Lead, or Emplastrum Plumbi.

History and synonymes.—The compound called in the London Pharmacopœia *emplastrum plumbi*, is also termed *emplastrum lytharguri*, and formerly *diachylon plaster.* It was known to the ancients, but for an explanation of its nature we are indebted to Chevreul.

Preparation.—It is prepared by boiling litharge, olive oil, and water, over a slow fire, until the two first ingredients have combined into the consistence of a plaster.

Theory.—In this process the oil becomes saponified, and converted by the aid of the elements of water into *glycerine*, and two acids, namely, the *oleic* and *margaric* *. The glycerine remains in solution in the water, while the acids unite with the oxide of lead to form the *oleo-margarate of lead*, or the lead plaster. The water in this process serves two purposes: it moderates the heat, and facilitates the union of the acids with the oxide of lead.

Properties.—It is met with in the shops in cylindrical rolls, of a greyish yellowish-white colour, brittle when cold, but softening and ultimately fusing by heat. It is insoluble in water, and nearly so in alcohol. It has no taste, but a feeble peculiar odour.

Composition.—According to Berzelius it is to be regarded as a tribasic salt, consisting essentially of—

1 atom fatty acids (oleic and margaric),
3 atoms protoxide of lead,

So that its proper appellation would be the *tri-oleo-margarate of lead.*

Effects and uses.—This plaster is employed in surgery on account of its adhesiveness and the mildness of its local action, for it very rarely excites irritation. It is used to keep the edges of wounds together in persons with delicate skins; and, spread on calico, it forms a good *strapping* for giving support, and causing pressure, in ulcers of the leg,—a most successful mode of treating them, and for which we are indebted to Mr. Baynton.

Emplastrum resinæ.—When lead plaster is mixed with yellow resin, in the proportion of half a pound of the latter to three pounds of the former, it forms the *emplastrum resinæ* of the Pharmacopœia, and which is commonly termed *adhesive plaster.* This is employed after surgical operations (as amputations, &c.) to retain the lips of wounds in contact. It is more adhesive than lead plaster, but at the same time more irritant; and hence at times causes excoriation.

Emplastrum saponis.—The *soap plaster* (composed of lead plaster and soap) is a very mild application, used principally as a mechanical support, though it has been thought to possess discutient properties.

Carbonate of Lead.

History and synonymes.—Carbonate of lead has been known by various names, such as *psimmuthium, cerussa, magisterium plumbi, white lead*, and *subcarbonate of lead.* The process for obtaining it, described by Pliny, is similar to that now followed.

Native state.—This salt is found native (crystallized or otherwise) under the name of *white lead ore.*

Preparation.—The usual method of obtaining it is by exposing sheets of lead to the vapour of acetic acid. As no acetate is formed in this process, it is obvious the acid must undergo decomposition; but the precise nature of the change is not known. Pure carbonate of lead may be procured by adding a solution of an alkaline carbonate to a solution of the acetate of lead.

Properties.—As usually met with in commerce, it is a white powder, tasteless, insoluble in water, but soluble in a solution

* For a farther account of the theory of saponification, see MEDICAL GAZETTE, vol. xvii. pp. 323 and 678; and p. 115 of the present volume.

of caustic potash, as well as in nitric acid.

Composition.—It consists of—

1 atom protoxide lead ..	=	112
1 atom carbonic acid ..	=	22
		134

Characteristics.—It dissolves in nitric acid with effervescence; and the solution thus obtained possesses the general characters of a plumbeous solution which I have already described.

Physiological effects.—Its *local* effects are not very powerful: applied to ulcerated surfaces, it acts as a desiccative and astringent: swallowed in large quantities, it does not act as a local irritant, like the acetate. Its *constitutional* effects are similar to the other preparations of lead already described. I have before told you that it appears the carbonate more frequently produces lead colic than the acetate—a circumstance which, if true, Dr. Christison thinks, may be owing to the great obstinacy with which its impalpable powder adheres to moist membranous surfaces, and the consequent greater certainty of its ultimate absorption.

Uses.—As a dusting powder it has been employed in excoriations of children and lusty persons; but the practice is objectionable. It has also been used in the same form as a desiccative to ulcers, and to remove spongy exuberant granulations. The usual method of applying this compound externally is in the form of ointment or cerate. There is no formula for this in the London Pharmacopœia, though there is in the Pharmacopœias of Dublin and Edinburgh.

Acetate of Lead.

History and synonymes.—Raymond Lully, who lived in the thirteenth century, mentions this salt. It has been known by various appellations, such as *saccharum saturni*, and *cerussa acetata*.

Preparation.—It is prepared by dissolving carbonate of lead in acetic acid, filtering, evaporating, and crystallizing. In this process the acetic displaces the carbonic acid, which escapes in the form of gas, while the oxide contained in the carbonate, forms, with the acetic acid, the acetate of lead.

Sometimes it is prepared by digesting sheets of lead in acetic acid. This is a cheaper process.

Properties.—The primary form of the crystals of this salt is the right oblique-angled prism: their taste is sweetish and astringent: they are soluble in both water and alcohol. At 60° it dissolves in about four times its weight of water. When heated it first fuses, then gives out its water of crystallization, and is ultimately decomposed, yielding pyroacetic spirit and carbonic acid. Carbonic acid causes, in the solution, a slight precipitate of carbonate of lead.

Composition.—This salt consists of—

1 atom protoxide lead......	112
1 atom acetic acid	51
3 atoms water (9×3)	27
	180

Its formula, therefore, is—

$$\dot{P}b\,\overline{A}\,3\dot{H}$$

Characteristics.—When heated with sulphuric acid it evolves the vapour of acetic acid, showing that it is an acetate. A solution of the salt is known to contain lead by the tests already mentioned for this metal.

Physiological effects.—Applied to ulcers or mucous surfaces, it acts as an astringent and desiccative. When swallowed in large quantities it sometimes gives rise to symptoms indicative of local irritation. Its *remote* or *constitutional* effects are precisely those already described under the general head of the plumbeous preparations. Dr. A. T. Thomson thinks, that it can only give rise to colic by becoming decomposed and converted into the carbonate; and he advises, therefore, the free use of acetic acid to prevent its conversion into the carbonate.

Uses.—The acetate of lead is used both as a *local* and a *remote* agent.

(*a.*) *As a local agent*, we use it in the form of solution, and ointment or cerate; as a sedative; astringent and dessicative. Thus a *solution* of it is applied to inflamed parts as a sedative wash; or to secreting surfaces to diminish the discharge, as to the conjunctiva in ophthalmia, to the mucous lining of the urethra and vagina in gonorrhœa and gleet, and to ulcers attended with profuse secretion. The *cerate* is a useful application to excoriated surfaces, after burns, to irritable ulcers, &c.

(*b.*) *As a remote agent* we use it for various purposes; thus, to check hæmorrhage, particularly from the lungs and uterus; to diminish excessive mucous discharges, as from the lungs, from the intestinal membrane (as in cholera, diarrhœa, and dysentery), or even from the urino-genital membrane; to check colliquative sweating, and as a remedy for mercurial salivation. The sedative and astringent effects of the preparations of lead already explained, would, in fact, point out these compounds as remedies in the cases just mentioned. On the same principles it has also been proposed to lessen the secretion of pus, in extensive

abscesses attended with hectic fever. This salt has likewise been used in some affections of the nervous system, as epilepsy, tetanus, and hydrophobia.

Administration.—It is given in doses of from one to three or four grains, usually in the form of pill. In cholera it is sometimes given in combination with opium, and, though the meconate of morphia in the latter will decompose the acetate of lead, the resulting salts are not inactive. You will, however, not fail to recollect, that sulphuric aci l (as in the infusion of roses), all sulphates (as of magnesia, or soda, or alumina), phosphates (as of soda), and carbonates, are to be prohibited: the sulphates and phosphates, in fact, render it inert, the carbonates facilitate the production of lead colic.

Solution of Subacetate of Lead.

History and synonymes.—This liquid is usually known in the shops by the name of *Goulard's extract.*

Preparation.—It is prepared by dissolving two pounds of litharge in a gallon of dilute acetic acid, and boiling down to six pints. The two bodies combine, and form a solution of a subacetate of lead.

Properties.—The solution thus obtained has a slightly yellow tint, and a sweetish astringent taste.

Composition.—It consists of either the *tri* or the *diacetate* of lead, dissolved in a variable quantity of water.

3 atoms protoxide of lead	336
1 atom acetic acid	51
	387

Characteristics.—This solution is known to contain lead in solution, by the tests for this metal already described. From other plumbeous solutions it is distinguished by the copious precipitate produced when a stream of carbonic acid is passed through it—by its precipitating mucilage, and most other organic substances.

Physiological effects.—Its effects are analogous to those of the acetate and other preparations of lead. According to Dr. A. T. Thomson, it is more apt to produce lead colic than the acetate.

Uses.—It is rarely used internally, though it has been said to have cured hydrophobia. As an external application, it is employed both in the form of solution and ointment.

The *diluted solution of the subacetate of lead* of the Pharmacopœia is commonly termed *Goulard's water;* it is prepared by adding a fluid drachm of the Goulard's extract to a pint of distilled water. In the Pharmacopœia, a fluid drachm of proof spirit is added, but it is useless. If *common* water be employed, a white precipitate of the carbonate and sulphate of lead is produced. It is employed as a cold wash, and as an astringent and sedative application, in ophthalmia, and to ulcers attended with a profuse discharge.

The *ceratum plumbi compositum*, commonly called *Goulard's cerate*, contains the subacetate of lead. It is used in the same cases as the cerate of the acetate of lead already mentioned.

Iodide of Lead.

It was introduced in medicine by MM. Cottereau and Verdet de Lisle. It is sometimes termed *ioduret of lead.*

Preparation. — The readiest method of procuring it is to add a solution of the acetate of lead to a solution of the iodide of potassium, until a precipitate ceases to be formed. The yellow powder thus obtained is the iodide of lead. It may be procured in a crystalline form by dissolving in hot water; as the solution cools, crystalline scales of the iodide are deposited.

Properties.—In the crystallized state, it is in the form of beautiful golden yellow scales.

Composition.—It is composed of

1 atom iodine	126
1 atom lead	104
	130

Physiological effects.—It is a most powerful agent. In full medicinal doses, it acts as a local irritant, and produces disorder of the digestive functions. Taken internally, and used externally, it causes a reduction in size, and ultimately the disappearance of scrofulous tumors. It is said, "that of all preparations of iodine, this is the most efficacious, and promises the most prompt and constant action. It is, moreover, free from the inconvenience of creating the cutaneous inflammation which the simple iodine and hydriodates occasion."

Uses.—It has been principally employed as an internal and external agent in the treatment of ulcers and scrofulous tumors. You will find some notice of the use of it in Lugol's Essays, already referred to when speaking of iodine.

Administration.—It is given internally, in the form of pill, in doses of from a quarter of a grain to half a grain, repeated several times in the day. Dr. O'Shaughnessy says ten grain doses are easily borne, without the slightest annoyance. An *ointment* of it is made of about one drachm of the iodide to an ounce of lard or spermaceti ointment.

REPORT

ON THE

MEDICAL INSTITUTIONS OF IRELAND.

By Wm. P. Borrett, M.D.

Assistant-Commissioner for inquiring into the state of the Irish poor.

(Communicated by the Author.)

[Continued from p. 287.]

PART II.—ON THE COUNTY INFIRMARIES AND THE FEVER HOSPITALS.

County Infirmaries have been established in Ireland under 5, 45, 47, Geo. III. and various other statutes, with an especial view to the treatment of accidents, casualties, and surgical cases of all sorts. There is one infirmary for each county, and funds are provided by voluntary contributions, and by a cess levied upon the county at large, but which must not exceed 600*l.*, the largest sum allowed by act of parliament. Notwithstanding the small amount of this limit, it is chiefly by means of the cess that the infirmaries are supported; such, at least, was the case with those which I inspected. They were possessed of little or no property of any description; the subscriptions amounted only to a small sum, and the fines from the Petty Sessions, as well as the grant from the Treasury, are scarcely worth taking into account. Thus it appears that the main charge is borne by the county.

There are several points of objection to the present law, and to the practice under it, for the regulation of the infirmaries. First, as only one infirmary is contemplated by the law, or has been established for each county, without reference to its size, the provision thus made for the relief of the sick poor, whatever may be its other defects, is wholly inadequate to the wants of a large and extensive population. Secondly, as a tax is raised off the land for the support of each infirmary, and made payable throughout the county, a great portion of the expense, particularly in the large counties, falls upon persons who live in rateable districts, but at too great a distance to avail themselves of the institution; and hence the inmates of the hospitals which I visited were generally confined to the immediate neighbourhood. Either means were wanting to transport patients from a distance, or there was no subscriber in the way from whom to procure an order for the infirmary. Great inconvenience was felt under the present practice of allowing to subscribers alone the privilege of ordering admissions; nor had this restriction had the desired effect of increasing the number of those contributing to the support of the charity. Further, a subscriber's order being made absolute, the medical officer was left without any discretionary power, and he might thus be obliged to reject urgent cases, in order to make room for others of comparatively little importance, but in which the applicants were furnished with tickets: whence it sometimes occurred to those who had been at the pains of sending a poor man to the county infirmary, to be further called upon for the cost of supporting him in lodgings in the town until such time as he could be received into the hospital. In the Roscommon Infirmary, any expense thus incurred is defrayed by the institution.

Not only great expense is incurred, but great injury may result from the removing of patients, and the delay which is thereby occasioned, before remedial measures can be had recourse to, if the distance be considerable. How frequently does the chance of recovery depend upon procuring assistance at the time, and on the spot! In bad accidents, and certain cases requiring operation, life itself is risked by delay or removal.

The last, but not the least objection, which I shall here notice, is grounded upon the exclusiveness of the cases admissible into the infirmaries. I frequently met with persons labouring under disease of an acute as well as lingering character in the towns where the infirmaries are situate, who were refused admission by the existing regulations, although suffering for the want of proper treatment, which could only be had when hospital accommodation was provided. For these reasons it had become a very general opinion in those parts of the country where I went in the course of my inquiry, that it would be much more for the public benefit to establish district hospitals upon a smaller scale, and for general purposes, in situations properly selected throughout the county, in preference to any single institution, of whatever size, and however well conducted, which bore an exclusive character: for such an institution could at best effect only a local or partial good, for which it was considered hard, nay unjust, to impose a tax upon the entire county.

The town of Mallow afforded a striking exemplification of the truth of the foregoing remarks. Although possessed of a county infirmary, and favoured, it would naturally be presumed, over other places, on this account, instead of gaining by this circumstance, it seemed to be really, upon the whole, the worse off for it. In no town which I visited did the sick indigent inhabitants stand more in need of medical

aid, while, as far as the county was concerned, such cures as were undertaken at the infirmary could only be appreciable at furthest to a very limited extent in the midst of so large and populous a community.

There are four sheds placed against a wall—a mere temporary arrangement for the reception of cholera cases, low, narrow, and ill ventilated, crowded with beds touching along the sides, and barely leaving space enough to pass down the middle. Such a mean and wretched contrivance was the only kind of accommodation for the treatment of fever for the town and neighbourhood of Mallow, distinguished as the resort of numerous strangers, and the residence of an opulent gentry. The calamitous consequence was, that by far the greater number of fever cases went entirely unrelieved and unattended to, while the few which could be received into the cholera or fever sheds were placed under such disadvantageous circumstances, as very materially to diminish the chance of cure. Not only febrile affections, but all internal complaints—in fact the bulk of diseases with which humanity is afflicted—are inadmissible into the Infirmary, which is appropriated to the treatment of cases purely surgical; whence it happens that the beds are sometimes occupied by patients with old ulcers on their legs, eruptions on the skin, with ophthalmic, syphilitic, and various chronic ailments of a mild and simple character, which might be treated for the most part quite as well if they attended as externs once or twice a week at the Dispensary.

This anomaly, if so it can be termed, is not chargeable upon the medical officers appointed to the Infirmary. It is incumbent upon them to admit such cases as the above in turn, when provided with a subscriber's order, and there was no lack of attention on their part to the proper discharge of their duties. It is not, therefore, to them that I impute the least blame, but it is to the principle that I object which obtains in the management of all these establishments; for of a truth that system must be bad which goes to provide intern accommodation in cases where it might, without any injury, be dispensed with, and leaves others at the same time to perish for the very want of it.

Instead of being an infirmary for the treatment of certain forms of disease only, and these neither the most common, nor in general of the most distressing nature, it would be much more serviceable if converted into a *general hospital*, and thrown open *for the reception of medical as well as surgical cases.* Physicians and surgeons should then be alike appointed, the beds distributed between them, and all truly necessitous persons admitted, if seriously ill, even without the form of a recommendation, giving a preference always to accidents and fever cases. There need be no fear of infection, if only the proper precautions be taken—if the ventilation be good, fumigation used, and a due regard had to cleanliness. This is well known to be the case by what is seen every day in the London hospitals, where no evil arises from the admixture of fever with other cases. But if most approved of, one ward or more might be given up to those who are suffering from fever, and they might thus be kept strictly separated from the rest of the patients. In order to promote its usefulness, a Dispensary ought to be attached to each hospital, either on the ground-floor, but having no communication with the interior, or a little apart from it, as at the lodge by the entrance to the Roscommon Infirmary. The same medical officer might take the charge of this department also: or if the hospital be large, others might be appointed, whose duty it would be to make domiciliary visits to the sick poor, besides attending regularly at the Dispensary, in the way I have already recommended when treating of this class of institutions. An hospital conducted upon a plan of this description could not fail to be of real service. It would provide intern accommodation for such cases, whether surgical or medical, acute or chronic, as stood in need of it, and for such cases only: and further, instead of their having to seek recourse at a great distance, as they are often obliged to do under the present system, it would be within the reach of all persons living in the district where the rate is payable, and thus no one having a just claim to relief need go without it.

Tralee contains a fever hospital as well as a county infirmary: but upon the principle just explained, viz.—that of establishing a general hospital, instead of hospitals for the relief of poor afflicted with fever, or other particular forms of disease, which are not to be recommended except in large towns, I would suggest the propriety of consolidating the two institutions, and carrying them on together in the Fever Hospital building. This is a neat, commodious edifice, capable of containing a hundred beds, and has recently been erected at a considerable expense to the county. It is well placed, contiguous to the town, in an open plot of ground of about an acre. Thus it is exceedingly well adapted for an hospital—much more so than the Infirmary, where the accommodation only admits of 25 beds; the rooms are small, and the site not so eligible.

But on inspecting the Fever Hospital, I found that owing to the scarcity of

the funds, it was made but little use of. It contains but 20 patients, and about twice that number of beds; and such wards as were occupied presented a comfortless appearance, being almost destitute of furniture, and not kept in a neat and cleanly manner.

As a fever hospital exclusively, so large a building is not required at ordinary times, and when fever prevails epidemically, it would not of itself be sufficient. Temporary accommodation must then be provided, and a barn, house, or other empty tenement, be applied to the reception of fever cases. Ample powers are given by act of parliament (59 Geo. III.) to meet an emergency of this sort. By this statute parishes are enabled to elect Boards of Health to remove nuisances, establish hospitals, and adopt such measures for precaution and cure, as become necessary by the occurrence of the calamity. The expense of all such proceedings to be defrayed by a parochial rate. The provisions of this statute are well adapted to the exigencies of the case, if they be only acted up to, and officers of health appointed as the act directs, but which I did not find sufficiently attended to.

A stronger argument may be adduced in favour of uniting the two establishments than that which I have grounded on the fitness of the Fever Hospital building for a general hospital, and the little need there is of it for its present purpose. From a return of their expenditure, which is given in the evidence, and comparing it with the estimated expenditure for one hospital, with as many beds as the two contain together, it will be seen that a considerable saving of expense may be effected by their consolidation; at the same time the efficiency of each may be increased and secured by an improved management. Instead of electing a mere nominal committee—certain ex officio governors and subscribers, who did not attend to their duties, but left every thing to the medical officers and treasurers—an active and vigilant supervision is required for the better administration of the affairs of the two institutions. Much complaint was made of the low state of the funds, and yet it was not usual for articles to be supplied by contract, and a heavy expense was sometimes incurred, where it might certainly have been avoided. Thus in the account of the expenditure of the Fever Hospital for 1833, (furnished me at my request by the Treasurer, but not satisfactorily drawn up,) I find an item of *seventy pounds* set down for *leeches*. The number of patients, as returned in the hospital that year, was 225. In 1831, the number was 443, or nearly double, and the charge for leeches 36*l*. 10*s*. In 1832 the number was 291, and the charge 28*l*. 15*s*. The total expense for remedies for the *three* years was only 87*l*. 7*s*. 5½*d*. Upon inquiry, I learnt that the leeches were supplied by the apothecary to the institution, at a charge of *one shilling each*. The same charge was made at the Infirmary, where the average yearly cost of leeches was stated to be about 25*l*.

If leeches can be only obtained at so high a price, the obvious remedy would be to substitute cupping or other depletory measure, as I found the medical attendants of other fever hospitals were in the habit of doing. I do not mean to prefer any charge against the medical officer, but I would observe, that the fact of these leeches being supplied by the apothecary, who was allowed in some instances, if I mistake not, to prescribe himself, gives an opportunity for the imputation of bad management, or jobbing, which ought not to be permitted in the economy of a public institution.

The management of the Roscommon Infirmary was in like manner left to the medical attendant, and the acting or under treasurer. Here, however, I am happy to be able to state, that the very strictest economy was observed. Public notice was given of such articles as were required for the use of the institution, and every thing obtained upon the most reasonable terms. The medical duties were carefully performed, and great credit is due to the benevolent individual who took charge of the accounts, for the care he had bestowed upon the subject, and for the zeal he evinced in the furtherance of this, and various other charitable objects.

The other statutory provisions for the regulation of the county infirmaries refer to the *qualification of the medical officer*, and to the *amount of his salary*. The salary is fixed at a hundred pounds Irish, or 89*l*.; and no person is eligible to the appointment except he be a member of the Royal College of Physicians or Surgeons in Ireland, (7 Geo. III).

The clause containing this restriction, (invidious as it may now appear, but necessary at the time) was no doubt introduced into the act for the purpose of securing the services of a skilful and efficient surgeon to the institution. The members of the Irish College of Surgeons are at great pains and expense to acquire sound professional knowledge and experience, and are subjected to a very strict ordeal before entering upon practice; and hence they are entitled to a preference, as a general rule. Still, the reasons just assigned do not constitute sufficient ground for keeping up a species of monopoly, which is objectionable at the present day; nor is it any longer desirable

to adhere to a rule which excludes from the county infirmaries, graduates of the London, Edinburgh, and Glasgow Colleges, or other persons duly qualified, who shall have obtained a liberal professional education, and have been examined and certified accordingly in some other accredited school. It would also tend to the advancement of surgical science, and to the benefit of the public, if the number of the medical officers to each infirmary were increased, as well as the distinction in question done away with.

I have already explained, under the head of salary, in the first part of my report, the general principle which ought to be followed out in awarding pay to medical practitioners in the discharge of public duties. For services of a higher order, the rate of remuneration should be increased. Still, the infirmaries being situate in towns, where there is opportunity and field for acquiring private practice, pecuniary compensation is not so much an object to the medical attendant, as it is in the country villages, where he depends for his livelihood chiefly, if not entirely, upon the emoluments of office.

By the 47 Geo. III. grand juries were empowered to raise certain sums for the support of fever hospitals; but after the contagious fever of 1817, additional facilities were given, by advances from the government, for their erection, repayable by instalments, and authorizing grand jury presentments for sums not exceeding *double* the amount of private subscriptions. See 58 Geo. III.

Under these statutes, fever hospitals have been very generally established in the county of Cork. It was only in one or two instances that I could hear of the grand jury having shown any indisposition to grant assistance, when the expediency of the case had been fairly made out. At Bantry, however, in 1831, the clergy of the town raised a subscription of 78*l*., and offered it to the grand jury to build a fever hospital with, but the application was refused; on what ground I could not understand, since there is an extreme want of hospital accommodation in this place, which I have elsewhere pointed out. At Kilworth, owing to its vicinity to Fermoy, the like necessity does not exist; but here, after a nobleman had expended 300*l*. in building an hospital, he could not make it available for want of funds. This was owing, however, to the gentlemen of the neighbourhood refusing to subscribe, rather than to the grand jury refusing to present. In Kerry * only two fever hospitals have been established; in Roscommon none. It becomes, therefore, a question, whether their establishment should not, under certain given circumstances, be made compulsory.

The principal fever hospital in Kerry is that at Tralee, which I have already noticed. At Killarney, the funds of the hospital were in a flourishing state at the time of my visit. They had been recruited by means of contested elections for the appointment of physician, and were husbanded by the treasurer, doubtless with the best intentions, but not with the happiest effects. The furniture of the hospital was scanty, the bedding in a bad state, the pharmacy poorly supplied, and the wards in need of cleaning, painting, and repair. The salaries of the physicians were low, and the apothecary paid by a paltry stipend of 15*l*. per annum, although daily employed at the institution. There was, however, every disposition on the part of the treasurer and the gentlemen subscribing to the hospital to make such arrangements as seemed best calculated to restore it to an efficient state. Meetings of the subscribers were summoned with this view, at which the assistant commissioners were invited to attend, and several regulations passed at their suggestion.

At Youghall and Kinsale the managing officers had done all that lay in their power to render the medical charities serviceable to the public. The physicians were in the habit of seeing poor patients at the hospital and at their own houses, and attending them when called upon, putting compensation out of the question; but their meritorious services were too often frustrated from want of sufficient funds and proper intern hospital accommodation. At Baudon, a few years ago, the resident medical practitioners, five in number, offered to take charge of the hospital, but the committee declined their offer of gratuitous attendance, preferring to have a physician attached to the institution who should be a paid and responsible agent. No fault could be found with the way in which the medical duties were performed by this gentleman; still it would have facilitated the means of procuring relief if the committee had adopted the plan subsequently proposed,—which was, to allow each physician a share of the pay, and so enlist them all in the cause of the poor; but they overruled this plan also. At Fermoy and Cove there was no lack of attention on the part of the medical officers belonging to the fever hospitals; and, indeed, generally speaking, these charities, too numerous to particularize, were well conducted. In all, however, so great was the necessity felt of accommo-

* A small but very neat hospital had just been built at Cahir, through the generous aid of the landed proprietary, but it had not come into operation at the time that I inspected it.

dation for surgical cases, that either a wing was added to the hospital, or certain wards appropriated for that purpose; but it was a common remark in all these cases with medical men who did not live in its immediate vicinity, that, as far as they were concerned, there might as well be no county infirmary at all in existence.

The medical institutions at Cork are the North and South Charitable Infirmaries, the House of Recovery or Fever Hospital, the Hospital attached to the House of Industry, the Dispensary or Humane Society, and the Lunatic Asylum. From the enumeration of these establishments it would seem that the sick poor of Cork are well off for medical succour—but the fact is far otherwise. When it is stated that there are but *sixteen* beds in the aggregate for the reception of medical cases (not febrile), and less than three times that number for surgical cases and casualties of all sorts, it is plain that with such very limited means but little can be done for the alleviation and cure of disease in a city with a population of more than 100,000. This very defective provision in point of intern accommodation in the two infirmaries has contributed to the extension of pauperism in a remarkable degree. It is become the common expedient with the poor, in the absence of all other means, to apply, as paupers, to the House of Industry, where they are no sooner received than they complain of being ill, and so contrive to get passed into the hospital belonging to it. Here, however, when once admitted, they are sure of being well attended to. It was most gratifying to remark how an institution, which had sprung up under such extraordinary pressure, and was full even to excess, could be so well sustained by such slender means. Nothing could surpass the neatness and order conspicuous throughout, or the attention paid by the medical officers to the cases committed to their care and skill.

A like tribute of praise is due to the physicians and others concerned in the management of the House of Recovery: a more excellent establishment of the sort there cannot be; and it is only just to the physicians and surgeons attached to the two infirmaries to state, that they discharged their duties with ability and zeal, receiving little or no compensation for their arduous services. That the charities, however, in the cause of which they were respectively engaged, did not prosper as they might have done, even with the inadequate resources of which they were possessed, up to the date of my visit in the one instance, and in the other only till within late years, may be ascribed to the faulty if not fraudulent practices which obtained in the management, in spite of remonstrance on the part of the medical officers, and through the neglect of the governors or trustees. In proof of this I shall extract largely from the medical evidence upon the North Charitable Infirmary, and allow the facts there recorded, which were only elicited after a lengthened and searching investigation, to speak for themselves.

On referring to the book of proceedings, it appears that scarcely any regular meeting of the governors has been held for the last forty years to elect trustees according to the provisions of the Act of Incorporation of 1774; and although this act requires that the accounts should be examined every month by five trustees, they seem for many months together to have been entered in the book at the same time, and frequently in the presence of only one, and seldom more than two, trustees. Indeed, no other signature is to be found in the account-book for several years in succession than that of the late surgeon, who was also a trustee.

Having understood that a meeting of the trustees for the North Charitable Infirmary was fixed for August 5th, the assistant commissioners determined upon being there. After waiting for an hour beyond the appointed time, the son-in-law of the apothecary to the establishment made his appearance, but with this exception the meeting passed unattended. It may be taken as a specimen of the annual meetings, at which the attendance had so much fallen off, that the apothecary stated that he was desired by one of the only two gentlemen who were present on the last occasion, to reappoint the same persons as trustees for the year following. The assistant commissioners attended also at the Infirmary on August 6th, which was the day fixed for a monthly meeting; but no accounts were prepared, and no trustee present. The treasurer did not attend either this or the former meeting, although he had fixed to do so.

At present, it appears, the whole business of the charity has been allowed to pass into the hands of the apothecary, who constitutes in himself the Board of Management, and, besides being apothecary to the institution, is the druggist, steward, accountant and collector, purveyor of stores of all kinds, whether food, fuel, medicine, furniture, or clothing. He finds the Charity with everything, and on his own terms, as nothing is obtained by contract.

As apothecary he receives a salary of *52l. 12s.* per annum, but he has ceased to reside there since 1832, when the Hospital was given up for the reception of cholera cases. He has an assistant, however, at a salary of *37l.* who is provided with lodg-

ings in the establishment. This assistant apothecary, as he is termed, is a young man, and apprentice to the apothecary. He is totally incompetent to take the charge of the hospital, which is left to him in the absence of the attending medical officers, and there is no record of his appointment by the trustees or governors upon the books of the institution.

The medicines are all supplied by the apothecary, who keeps a large druggist's establishment in the city. Their cost appears to have been unreasonably high until lately, when the apothecary consented to charge the North Infirmary at the same rate as medicines were supplied by tender to the South Infirmary. On this account the bill for medicines has diminished of late years, although twice as many extern patients have been prescribed for and supplied with medicine at the hospital; and, although the number of beds has been increased by one-third since 1829, the annual expenditure is much the same as before that time. The same number of beds is, however, still maintained at even a considerably less expense at the South Charitable Infirmary.

The servants are all appointed and paid by the apothecary, and liable to be discharged at his pleasure. The number returned seems unnecessarily large for an establishment containing only thirty beds, or thereabouts. They consist of a doorkeeper, a matron, two nurses, two kitchen maids, and an assistant kitchen maid, as they are designated. It did not appear that there was any occasion for two of these servants, or if in the house, that they were occupied in the service of the Charity; and the washerwoman acknowledged that she had been employed for the last twenty years in washing for the apothecary and his family, and that articles were regularly sent from his private residence and made up at the institution, and no other work was done by her, although every thing was paid and found out of the funds of the Charity.

The system of account-keeping, if system it can be called, which is also conducted by the apothecary, reflects any thing but credit either on those who made up the accounts, or those who audited and passed them; and it is really a matter of astonishment, that a more clear, explicit, and satisfactory statement of the expenditure of the public money should never have been required by those who were appointed trustees to the Charity, for the express purpose of being guardians of the public purse. It would scarcely be supposed that the heaviest charges on the list, frequently exceeding fifty, and amounting occasionally to a hundred pounds and upwards, recurring monthly or nearly so, should be entered under the very vague and general head of "sundries." Under this head are included coals, chandlery, grocery, spirits, and repairs of all kinds, &c. &c. and on examining the stewards', or rather the apothecary's, private book, to ascertain the average annual cost of such articles, it was found that they varied in a remarkable degree; and yet they ought to have been pretty constant, seeing that the number of patients was for the most part the same. Many bills had been allowed to run on from year to year, and the charges for coals, soap, candles, grocery, &c. were most extravagant.

In the year 1832 a report was presented to the trustees by the physicians and surgeons of the Infirmary, recommending the appointment of a monthly committee, who, in conjunction with them, should provide for the internal management and economy of the hospital. They urged the necessity of establishing a regular dietary, whereby there could be a daily check upon the consumption and cost, and also suggested that all articles should be supplied by contract after public advertisement. Their recommendation was referred to a committee, who never reported at all upon it, and things were allowed to go on as before.

The only person besides the apothecary who seems to take any part in the management of the North Infirmary, is the treasurer. He acts without a salary; but he gives no security for the money placed in his hands, nor can he be said to account to the governors, as they scarcely ever hold a meeting. In 1832, a legacy of 500*l.* was left to the Charity, and an order was made by the Board to have it lodged in the Savings' Bank. This order bears the date of May 7th, 1832, but it had not been complied with in the summer of 1831, at the time of the visit of the assistant commissioners; and they were told that repeated individual applications had been made to the treasurer to have it so lodged, but without effect. It is expedient that the money should not be thus left at the entire disposal of any treasurer, as in the time of the last treasurer there seems to have been a good deal of trafficking with the funds. Various sums of money belonging to the charity had been lent to different persons for their own uses, and at different times, without, as it would seem, any order of the Board, or the sanction of the trustees. Two large sums, one 646 .3*s.* 1*d.*, and the other 369*l.* 4*s.* 7*d.* were returned as still due, together with interest which had accrued upon the latter sum to as much or even more than the original debt. And at this time there is a Chancery suit pending, in which the charity is concerned, a bill having been filed against the trustees to

recover a property mortgaged to them for a sum of money lent by them to one of their own body. If the trustees be not personally liable, the expense of litigation must fall heavily upon the funds, and if the decision prove unfavourable to the charity, it will be reduced to almost a state of insolvency.

Thus charged with debt, involved in litigation, the remnant of its property imperfectly secured, its income small and diminishing, (the number of subscribers being reduced to nearly the number of trustees appointed by the act, and being for the most part personal friends of the officers,) this institution seems to be fast approaching to a critical period, beyond which it is very doubtful whether it can contrive to exist. The establishment itself is as worn out as its resources. Only seventeen out of thirty-four beds were kept up at the time of my visit, and the furniture, sacks for straw bedding, sheets, blankets, domestic and pharmaceutical utensils, &c. whether from decay or dirt, were scarcely fit for use. Admitting that this in a great measure might be owing to the expectation of moving shortly out of the old building into the new one, still it is clear that the new Infirmary cannot by any possibility be made available for any useful purpose, unless there be a total change in the system—unless each department be remodelled, except that of the physicians and surgeons, and, above all, the Act of Incorporation be done away with, under which the North Infirmary has been mismanaged for so many years, and dwindled down into a mere family concern, while ostensibly existing as a public charity.

There is only one point to which I shall refer in the past management of the South Charitable Infirmary. It will be a much more agreeable and useful task to describe the praiseworthy manner in which it is at present conducted. The late treasurer, it appears, who continued to act even after he removed to Dublin, was in the habit of paying the debts of the institution by notes of hand or bills, and articles were declared paid, for which, in fact, the payment was not effected till some time after. This serves as an additional illustration to the instances * already given of the faulty manner in which the funds of public charities are liable to be administered, even when entrusted to persons of the highest respectability. At present the funds are very properly placed in the Savings' Bank, and thus, besides being better secured, they are made to bear interest. A further improvement would be, if they were so placed in the name of more than one individual.

* See under head 'management' in the first part of Report.

The trustees of the South Charitable Institution, (as I was informed by Drs. Woodroofe and Harvey,) anxious to diminish, as far as possible, the great disproportion of hospital accommodation to the wants of the poor of so large a city, made, in 1831, at the recommendation of the physicians and surgeons, an entire change in the management of the establishment. Since that period they have thrown open to free competition the supply of medicines, provisions, coals, and, in fact, every article which could be thus obtained on better terms. Contracts are also made every half year for particular articles when any advantage can be gained by it. They at the same time adopted the military system of diet-rolls, tabular extracts of expenditure, &c. with such modifications as were applicable to the institution. From these and other regulations they are now enabled to ascertain, at any period, not only the actual rate of gross expenditure, but also the most minute details of each article of consumption; and experience has fully warranted the confident opinion expressed by the medical officers in their recommendation, that the advantage of system and regularity thus introduced, would be still less remarkable than its economy. This will be readily seen by comparing the average outlay and amount of medical relief of two years before, and two years after, the adoption of these measures.

Admitted on the books—

In 1828	Interns 295	Externs 8558
In 1829	— 332	— 8442

Average interns 313, externs 8500, total 8813.

Average expenditure, 832*l.* 6*s.* 0½*d.*

Admitted—

In 1832	Interns 339	Externs 10,004
In 1833	— 358	— 12,248

Average interns 348, externs 11,126, total 11474.

Average expenditure, 686*l.* 6*s.* 2¼*d.*

Thus we have, on comparing the two periods, an actual saving of 145*l.* 19*s.* 9½*d.* with a mean increase of 35 interns, 2626 externs, or 2661 in the total number of patients; notwithstanding a deduction which should be made for repairs in the latter period, added to the disadvantage of another circumstance which is not taken into account—that in the two former years, the lock wards being then open, nearly one-half the diets consisted of bread and milk*.

* According to a calculation made by Dr. Harvey,—

The cost of a milk-diet was only 3⅛*d.*
— low-dict — [illegible]*d.*
— full-diet — 4*d.*

at the contract prices of the South Infirmary. In other hospitals the average cost of one diet was 5*d.*

When retrenchments upon so large a scale (which allowed the opening of additional beds) could thus be effected, by the adoption of a better system of management at the South Infirmary, it must be matter of surprise to all, as well as of reproach to the governing body of the North Infirmary, that they should persist up to the last in the old system, uninfluenced and unreclaimed by the good example set by the sister institution.

The new building for the North Infirmary has been raised by a fund of 3300*l*., derived chiefly from a legacy which was left for the promotion of some charitable object, and was applied to this purpose and added to by subscriptions. It stands upon a piece of ground, which was formerly the garden to the old infirmary, in an elevated position, but hemmed in by houses of the poorest description upon all sides. A lot of tenements in front of it, and much wanted for an approach, were offered for sale at a low price not long since, but as the trustees never held a meeting, nothing could be done in the matter. These dwellings have since been put in thorough repair, and, of course, cannot now be purchased but at a considerable additional expense.

The new hospital is substantially and neatly built, and well planned in the interior. It contains two large wards, several smaller ones, and apartments for officers and servants. It offers good accommodation for 140 patients; but when finished and paid for, the annual income will be under 500*l*.—a sum* only sufficient to provide a fourth part of the number of beds it could be made to contain. Unless, therefore, some means be found for supplying this deficiency, much money will have been expended to very little purpose, and the advantages of excellent intern accommodation, which this building is capable of affording, and of which Cork is so much in need, will be in a great measure lost to the public.

To obviate so deplorable a result, it was proposed, in the absence of better means, to unite the funds of the two infirmaries for the support of the new hospital. It was shewn that a considerable saving might be thus effected, that the number of beds might be doubled, without adding to the expenditure, by only consolidating the establishments, and an act of parliament was at length obtained for this end, at an expense of 600*l*., which was taken out of the funds for the new building. It is certainly most desirable that this plan should now be carried into full effect, if no more than sufficient funds can be raised for the support of one infirmary. It would be worse than folly in such a case to attempt to evade the Act, and to renounce the power thus afforded (after having been at so much cost and pains to obtain it,) of extending hospital accommodation to double its present amount. In the event of a union, the medical staffs of both the North and South Infirmaries might be retained, and discharge alternate duty every month, or for six months at a time, until reduced to the required number by resignation or otherwise. But who can doubt that *the two* infirmaries are indispensable? Reckoning 60 beds for the South Infirmary*, and 140 to the new North Infirmary, what are 200 beds among a population exceeding 100,000, for medical and surgical cases and casualties of all sorts, omitting fever cases, which are sent to the House of Recovery? In so large and opulent a city, considerable aid ought to be derived from private contributions. The feelings of humanity, and a due and enlightened sense of what is owing to society, must ensure the accomplishment of so useful an object. But if this resource prove unavailing, so great are the exigencies of the case that it should be done at the public expense, and a rate levied upon the town to the amount required. And should the plan of establishing district hospitals be adopted, one of them might most advantageously be placed in the city of Cork, and forty beds appropriated for this purpose at the new infirmary, the expense of which, of course, would be borne by the county. If this proposition be carried into effect for the two infirmaries, and the Fever Hospital be maintained on its present efficient footing, a great advance will be made in this place towards providing effectual medical relief for the sick poor. And it may be further increased by remodelling the Dispensary with branch stations in different parts of the city and the suburbs, so as to comprise the separate establishments at Douglas

* The annual expense of an hospital establishment, containing 140 beds, may be estimated at 1800*l*., or at most 2000*l*. Thus—

	£	*s*.	*d*.
140 Patients (diet 5*d*. a day, or 7*l*. 12*s*. 1*d*. a year)	1064	11	8
4 Nurses, at 20*l*. each	80	0	0
6 Assistant do. at 15*l*. each	90	0	0
Resident Apothecary	80	0	0
— Steward	65	0	0
— Matron	50	0	0
— Porter	20	0	0
Medicines	100	0	0
Coals (100 tons), &c.	75	0	0
Soap, Candles, &c.	50	0	0
Wine, Grocery, &c.	50	0	0
	1724	11	8
Incidental expenses	75	8	4
	£1800	0	0

* In the South Infirmary there is at present accommodation for about this number, and it might be increased to a hundred at a small expense, if necessary.

and the Stroud Road. The officers of the Dispensary may thus be enabled to transmit into the hospitals cases of acute and severe disease, whether medical or surgical, or of febrile form, as soon as they shall be duly reported. At present there is no co-operation or understanding between the charities, and much mischief arises, together with waste of means, from the poor attending the infirmaries and dispensary at the same time, taking the physic given at each upon the calculation that if one be good, three must be better. This, Dr. Denis B. Bullen assured me, was a common practice.

The Cork Lunatic Asylum is intended for the treatment and protection of the destitute idiots and insane of the city and county of Cork, who are received upon the certificate of two magistrates*. It is under the direction of the governors of the House of Industry, but with distinct funds obtained by grand jury presentments, on the certificate of the physician (who is the chief officer of the establishment), as to the probable amount required. The expenditure of the governors is controlled by the grand juries at each assizes; but it is important to add, that the single clause of 27 George III., under which the asylum is conducted, provides no mode of check, or system of government, although it gives an unlimited power of obtaining money on presentment.

The asylum consists of 197 cells, 10 feet by 6, and of fifteen other sleeping apartments, of from 50 by 20 to 14 feet square, with eating-rooms, or day-halls, for each ward. It contained 353 patients at the time of my visit, 177 being males, and 176 females. It was stated that an excess of males invariably came from the county, and of females from the city. The annual expenditure, upon the average of the last four years, was upwards of four thousand pounds (4098*l*.†)

From the great size of the county, as well as the city, and the indiscriminate admission of all classes of the insane, the pressure of cases is always heavy, and the number constantly accumulating in the house, for which there is no vent but death: such are congenital idiots, and confirmed epileptics (of which there were as many as 88), and other incurable cases of the like kind.

Thus the institution had become crowded far beyond the proper means of accommodation. No less than forty of the inmates were huddled together, for want of room, every night into one apartment littered down with straw—a practice which had led to the most disgusting consequences. In the yards, too, by day, it was almost impossible to preserve order and quiet in such a promiscuous assemblage of persons in every stage and variety of lunacy. Neither was the want of a proper separation the chief evil; for although it cannot be denied that occupation of some kind or other is of the very first importance in the successful treatment of insanity, yet the lunatics in general were left with little or nothing to do, which could serve to engage their attention. Some sat moping about the day-rooms, and in the corners, disgusting drivelling objects, who had survived the loss of every sense; but the greater part collected in the open yards, mere idle spectators of the follies and ravings which were being enacted before them by chattering grinning idiots, or by their more violent and contumacious brethren, who, although harmless from being confined in strait waistcoats, would still be threatening and vociferating. Thus it appeared that even those which were favourable cases for a cure, were placed under circumstances which could not but militate against their recovery.

To the present physician, however, even under the existing arrangements, imperfect as they unquestionably are (which, as I have remarked, is chiefly owing to the excess of patients), the establishment is much indebted. Before his appointment, as I was informed, no kind of classification had been attempted: idiots were mixed with maniacs, and these with convalescents, to their mutual torment and danger. From the inadequacy of attendants, 80 patients out of 287 had been for months confined to their cells, many of them crippled in consequence; and male keepers were in charge of female wards. Through his exertions additional wards have been built, and an hospital for invalids was being erected at the time of my visit. A kind of fourfold distribution of the patients has also been effected, and other judicious regulations introduced for their better management and treatment. The keepers, too, had been doubled in each ward and yard, by which excitement was abated, and confinement and personal restraint dispensed with in many instances; and, at the same time, female delicacy was respected and preserved, by the exclusion of male keepers from the female wards. Something, too, had been done with the view of finding employment for the lunatic patients. The cooking, washing, and the needle work, which used to be attended to in the House of Industry, were performed in the asylum, together with painting, gardening, scouring, and cleaning; and the lunatic patients were in

* A medical certificate is not required, which appears to be a great omission.

† Further particulars are given in the medical evidence.

some cases induced to work by promising them a small gratuity to be laid out in clothes, or hoarded for them for the season of their discharge, to supply them with the means of returning to the distant parts of the extensive county. In addition, it may be stated that the greatest possible cleanliness was observable in the cells, wards, and yards, and, indeed, in every part of the establishment.

That the principles of forbearance and conciliation direct the treatment of this asylum may fairly be inferred from the little restraint which was to be witnessed, and the very few cases under confinement. One case, however, I shall particularly allude to, as a circumstance occurred during the visit of the Assistant Commissioners, which was at the time made the ground for a report prejudicial to the character of the medical and other officers belonging to the establishment. It was the case of a maniac, of a hopeless and intractable nature. Upon going to his cell, we found him with his hands tied, and his feet secured to the bedstead, crouching under the straw, with scarcely any clothes about him; and anxious to ascertain whether he had been crippled or injured in any way by the coercive measures which it became necessary to resort to from the violent and outrageous bearing of the patient, we desired his handcuffs might be removed, but the keeper was unable to loose them. He succeeded, however, after a time, by means of assistance which he had procured, and it was then found that the difficulty had arisen from the lock being stopped up with plastering off the wall, which had been driven in by the wretched maniac striking his arms against the walls of the cell (as he was constantly doing.) When released, I examined him with care, but did not detect any bruises, or marks of violence, upon the wrists or other parts of his person. Understanding, likewise, that he had been visited from time to time during his confinement, I did not consider that a case had been made out implying a want of proper attention or humanity on the part of the attendants; on the contrary, I looked upon it as an accident which might have occurred in any asylum, however well regulated*.

Some idea of the degree of success obtained by the physician since his appointment may be gathered from his reports, printed and published annually, from which it appears that the average annual admissions exceed a hundred for the last eight years; and that those cured, or so relieved as to be removed by friends, amount to two-thirds, and the deaths to one-fifth, or nearly so, of the whole number. But even if this be a very favourable result, which beyond a doubt it is, it must still be presumed that the amount of success would be further increased, if the treatment were conducted under less adverse circumstances—if the institution were less crowded, employment found for the patients, curables and incurables less blended together, and that space which is now appropriated to the safe custody of incurable lunatics were more usefully employed in the treatment of cases in which the probabilities of recovery still exist.

The physician enjoys a salary of 175*l*.; 100*l*. on account of the county, and 75*l*. for the city; but his duties are onerous,—in fact, he may be said to have the entire charge of the establishment, the moral governor, as he is called, being only a subordinate officer, and the surgeon admitted only when his particular skill is required. Whatever success, therefore, there may be (and I have shewn it is not a little, due consideration being had to all the circumstances), is fairly to be ascribed to the ability, attention, and method of cure, of the superintending physician. How far it may be requisite for him to undertake the financial and general, as well as the medical management of the asylum, I do not pretend to say; but there can be no error in placing a professional gentleman, of liberal education, at the head of the affairs of such an institution, in conformity with the principle which has of late been fully acknowledged in the treatment of mental alienation—that in all attempts to benefit and cure insane persons, they should be assigned to the care of the physician, and treated in all respects with an especial regard to cerebral disease.

In conclusion, I may observe, that the Cork Lunatic Asylum was the only establishment of the kind which it came within the scope of my instructions to visit. I cannot, therefore, offer any opinion as to the propriety of converting it into a district lunatic asylum. For information in regard to the new district asylums, I beg to refer to the joint report of my "*collaborateurs*," the late Sir David Barry and Dr. Corrie.

WM. P. BORRETT, M.D.

Queen Ann Street, Cavendish Sq.
March, 1836.

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* The poor maniac of whom I have spoken was carried off soon after by a diarrhœa. In consequence of his death, and statements reported to have been made about him, the Lunatic Committee instituted a full inquiry into his case, taking the testimony of the different persons concerned in the management of the asylum, the perusal of which cannot fail to remove any unfavourable impression, if, indeed, such a feeling should any where exist after the explanation already given.

FURTHER OBSERVATIONS

ON

AFFECTIONS OF THE BLADDER IN PARAPLEGIA.

By Thomas Blizard Curling,
Assistant-Surgeon to the London Hospital, and Lecturer on Morbid Anatomy.

In a short paper on the Affections of the Urinary Organs, so generally observed after injuries and diseases of the spine causing Paraplegia, inserted in the Medical Gazette, for October, 1833, (vol. xiii. p. 76), I was induced to arrive at two conclusions:—1. That the morbid state of the bladder results from the loss of the natural sensibility of its mucous surface — that is to say, that being deprived of the nervous influence which it receives from the medulla spinalis, its ordinary stimulus to evacuation is lost; it is constantly subject, therefore, to the injurious effects of over-distention, the acrid properties of unhealthy urine, and the frequent introduction of a catheter, and there is, in the first instance, a deficiency of the *natural healthy* secretion necessary for its protection; so that under a combination of unfavourable circumstances, it can rarely escape disease. 2. That the alkaline condition of the urine is produced *primarily* by the morbid secretions of the bladder, and *secondarily* by the altered secretion of the urine, arising from a debilitated and irritable state of the system, or from a sympathetic affection of the kidneys.

I was not then aware that I had been in some degree anticipated in the first conclusion by Dr. Alison, and I was much gratified in finding that it was in accordance with the opinion of so eminent a physiologist.

Several cases have since come under my notice, at the London Hospital, which tend so completely to sustain the accuracy of the second, that I think they will be regarded well worthy of record.

Case I.—*Fracture of the Sixth Cervical Vertebra — Separation of the Right Sacro-Iliac Symphysis.*

Eliza Sayer, a married woman, aged 33, was admitted into the hospital, under the care of Mr. Luke, October 10, 1834, in a state of collapse; having thrown herself out of a second-story window a few hours previously. On examining the back, a crepitus was felt about the lower cervical vertebræ, and also at the sacrum. There was loss of sensation and motion in both lower extremities, and also numbness of the abdomen, chest, and arms, particularly of the left upper extremity, in which there was complete paralysis of the parts supplied by the spinal nerve. Respiration was carried on solely by the action of the diaphragm. After a few hours there was slight reaction, and it became necessary to empty the bladder by means of a catheter *.

11th.—Great pain experienced in the back; quick pulse, and hot skin. The urine was drawn off and examined about 2 p.m. It was transparent, of its natural colour and odour, and readily reddened litmus paper. In order to prevent it from accumulating in the bladder, an elastic gum catheter was retained in the urethra, both orifices being left open, so as to allow the urine to pass off as soon as it arrived at the bladder.

12th.—The dresser, on visiting her about 9 a.m., found the urine, recently received into a porringer, so highly ammoniacal as to affect his eyes when examining it. It was of a dark mahogany tint, rendered the turmeric paper brown, and restored the colour to reddened litmus paper.

15th.—Pulse quick, and weak; skin hot; tongue dry, &c. No urine having passed for some hours, the catheter was withdrawn; when it was found to be clogged with a thick tenacious mucus. On introducing a larger instrument, about three pints of turbid and highly ammoniacal urine were removed.

17th.—She was somewhat improved in her general state, and could move her arms a little better. Her urine, which possessed a strong ammoniacal odour, contained fragments of coagula and mucus of a distinctly alkaline quality. The bladder was carefully washed out by frequent injections of tepid water, until the fluid which escaped produced no action upon the reddened litmus papers. The bladder having then been completely evacuated, the patient was left for half an hour; at the end of which time, on introducing the catheter, about an ounce of urine was removed. On careful inspection, *it was found to be limpid, of its natural colour, without any ammoniacal odour, and to*

* Various particulars connected with treatment, not being essential for the object in view in detailing these cases, are omitted in the reports.

produce no change upon reddened litmus paper, but to give a slight tinge of red to the blue. The catheter was no longer retained in the bladder, but the urine was drawn off three times in the twenty-four hours.

22d.—She was much weaker, and suffered considerably from dyspnœa. Her urine was still highly alkalescent, and contained a large quantity of muco-purulent matter, which adhered slightly to the bottom of the chamber utensil. The bladder was directed to be washed out three or four times in the course of the day.

29th.—She had improved somewhat in strength during the last week, and ate her diet, consisting of a mutton-chop, with wine and porter. *Her urine was of its natural colour, without any offensive odour, and it reddened the litmus paper slightly.* The injections were discontinued.

November 1st.—She was seized with a kind of fit, during which she was nearly suffocated. It lasted about an hour, and left her weak, and with great dyspnœa. Urine ammoniacal.

From this time she sank gradually, and died November 7th.

Inspection, twelve hours after death.—A fracture traversing the body of the sixth cervical vertebra, the spinous process being completely broken off. No part of the bone depressed into the spinal canal. Medulla spinalis at the seat of the fracture softened, its membranes highly injected, and the theca adherent to the ligamentum posticum. A separation of the right sacro-iliac symphysis, connected with which there was a small abscess that had made its way under the peritoneum to the side of the bladder. Coats of the bladder thickened, its mucous lining congested, and of a slate colour; and at the lower and posterior parts there were several ulcers, about a quarter of an inch in diameter, which had extended through the mucous and muscular coats. *Kidneys and ureters perfectly healthy.* Cysts connected with the ovaries. An extensive slough over the sacrum*. Lungs congested.

Case II.—*Fracture of the Spine about the last Dorsal Vertebra.*

James Mulvarney, ætat. 50, a ballast-heaver, with muscles well developed, was brought into the London Hospital on the morning of June 8, 1835, having met with an accident by falling down a ship's hold, a distance of twelve feet, about an hour before. He was nearly insensible when admitted, but would answer questions if aroused. He was totally unable to move his lower extremities, but had not lost sensation. There was considerable ecchymosis at the lower part of the back, and a distinct depression and crepitus were felt about the last dorsal vertebra. He recovered himself towards evening, when he was bled. He was able to pass his water, but his fæces passed involuntarily for a few days. Considerable febrile excitement ensued, but it was checked by appropriate treatment. The urine at first became high-coloured and somewhat clouded with mucus, but, after a few days, returned to its natural state. *It was acid throughout.* No sores on the nates.

July 25th.—He was still unable to move the lower extremities, although sensation remained unimpaired. The back, in the first instance, had been largely leeched, and he had subsequently taken mercury until the mouth became so e, but without relieving the paralysis. He continued in the hospital for several months, during which time issues were made in the back, and electricity and other measures resorted to, without much benefit. His bowels continued very costive, and constantly required some purgative in order to enable them to perform their functions.

Discharged January 21, 1836; the muscles of the thighs and legs being somewhat atrophied, and with no power over the left lower extremity, and but very little over the right.

Case III.—*Fracture of the Twelfth Dorsal Vertebra.*

John Johnson, aged 25, an engineer, and a robust healthy man, was brought into the hospital, about 1 P.M., June 19, 1835, having been injured by the slide valve of a steam-engine, consisting of about a hundred weight of iron, falling upon the lower part of his back. He was in a state of collapse, and had lost both the power of moving and sensation in the lower extemities. There was slight priapism, and he complained of great pain about the twelfth dorsal vertebra; which, upon examination, was found to be considerably depressed below the level of the eleventh. In

* She was placed upon an hydrostatic bed on the second day after the accident.

order to remove the displacement, Mr. Luke, under whose care the patient was admitted, directed the shoulders to be fixed, and gradual extension to be made from the feet. During its performance, the man remarked that he felt as if something had slipped into its place. The depression was removed; he expressed himself in some degree relieved from the pain, and the priapism slowly subsided. His urine was drawn off, and, being tested with litmus paper, was found to be acid. He was placed upon a water bed, and in the evening his back was leeched. Urine directed to be drawn off three or four times in the twenty-four hours.

20th.—Had passed a good night, and was free from pain. Feverish, and urine high-coloured and acid.

21st.—Complained of a smarting pain in the course of the anterior crural nerves, especially of the right. Urine turbid, of a mahogany tint, but slightly acid.

22d.—In the morning his urine was loaded with mucus, but it reddened the litmus paper very slightly. In the evening it was decidedly alkaline, instantly restoring the colour to the reddened litmus paper, and possessing a strong ammoniacal odour.

24th.—He felt low and feeble. Urine turbid, and highly ammoniacal. Pain experienced in the hypogastric region if the water is not drawn off frequently. A small quantity dribbled from the urethra. Prickling pains felt along the lower extremities.

29th.—Health a little improved. On introducing a catheter, *the urine first removed was observed to be perfectly clear and acid; but that which escaped afterwards, being received into a separate utensil, was found to be turbid, and did not affect the blue litmus paper.* The urine continued to dribble from the urethra, but the bladder was never wholly emptied. The insensible glans penis, prepuce, and scrotum, were much excoriated. The prickling pains in the limbs were much increased, and the skin was so sensitive that he could scarcely bear the bed-clothes upon them.

> Ordered the decoction of Pareira Brava, with ten minims of Nitric Acid, three times a day.

July 28th.—Was weaker, and emaciated. The integuments over the sacrum had sloughed. Urine limpid, but ammoniacal. Having caught cold, some antimonial medicine was substituted for the pareira brava and nitric acid. On the following day, his urine was excessively turbid, but on resuming the acid medicine a day or two afterwards, it again became clear, although alkalescent. His water dribbles away as soon as a small quantity is collected in the bladder.

August 30th.—Improved in health, and sits up for a short time daily. The bladder appearing distended, a catheter was introduced, when some calculous matter was felt, which, having been disturbed by the catheter, a small quantity of the phosphate of lime, of the consistence of mortar, passed away with his water in the course of the afternoon.

September 19th.—The sore on the nates had extended, and he was much weaker. The bladder was washed out for several days with tepid water, but the urine still continuing ammoniacal, some nitric acid was injected, in the proportion of a minim and a half to an ounce of water. As, however, he experienced considerable uneasiness after it, and was unable to rest the following night, and the urine which passed during the next day having been bloody, the injection of acid was not repeated.

24th. — Appetite diminished, much weaker, and extremely emaciated. The urine being exceedingly turbid and offensive, the bladder was again injected with warm water once daily; and after a few days it became clear, and was but slightly alkalescent.

Oct. 12th. — Very feeble; sloughing of the integuments on the outer part of the left leg, where it rested upon the bed. Sore on the nates increased; pain experienced in the lumbar and iliac regions, which were tender to pressure. It was slightly relieved by the application of a few leeches. Urine ammoniacal, and much loaded with mucus.

From this time he gradually got weaker, but lingered on till the 4th of November, when he died.

Inspection, 30 hours after death.—The body extremely emaciated, especially the lower extremities, which were atrophied in a greater degree than I ever remarked in the most lingering cases of phthisis. Miliary tubercles in a state of softening, thickly studded throughout the lungs; heart natural. Bladder contracted and thickened, its mucous coat covered with numerous tubercles of lymph. Ureters much thickened, and their mucous lining in-

jected, and also coated with lymph. Kidneys highly injected, with the mucous membrane of its pelvis thickened, and studded with granular projections of lymph. Some loose calculous matter in the kidneys, and in the ureters. The fracture had traversed the body of the twelfth dorsal vertebra, close to its upper articulating surface. It was displaced so as nearly to obliterate the vertebral canal, and the intervertebral substance between the eleventh and twelfth was entirely wanting. A portion of bone was also detached from the body, in front; union between the broken bones tolerably firm, although partly ligamentous. Medulla spinalis at the seat of injury in a state of ramollissement. I was desirous of examining the nerves, muscles, and bones of the lower extremities, but was prevented by the interference of the friends of the deceased.

Case IV.—*Fracture of the skull, and of the seventh cervical vertebra.*

John Reed, a stout man, aged 45, was admitted into the hospital under the care of Mr. Scott, Sept. 28th, 1835, having met with an accident in the London Docks about two hours previously, by falling from a height of 12 feet on the deck of a vessel. He was partially insensible, and in a state of great prostration, but soon revived, and complained of a violent pain in his neck, which was much increased by the slightest motion. On examining the neck, the spinal process of the seventh cervical vertebra was found depressed, and it produced a crepitus when moved. Respiration performed solely by the action of the diaphragm. Loss both of sensation and motion in the lower extremities. Fingers felt numbed, but he was able to move his arms. There was considerable priapism, but it soon subsided.

29th.—Quite sensible, and complained of severe pain in the neck. His fæces passed involuntarily, and it was necessary to relieve his bladder by means of a catheter: but very little urine was secreted—scarcely half a pint in twenty-four hours.

Oct. 1st. — Feverish, with a quick pulse, and much inclined to dose. Urine scanty in quantity, high-coloured but acid.

3d, 2 P. M.—Still feverish; urine of a deep mahogany tint and acid, with a small quantity of mucus, which subsided in a cloud towards the bottom of the chamber utensil.

9 P. M.—Urine decidedly ammoniacal, instantly restoring the colour to reddened litmus paper.

4th.—Evidently much worse. Considerable dyspnœa and a feeble pulse. Towards the afternoon he became comatose, his breathing stertorous, and his pupils did not act to the stimulus of light.

Died at 7 P. M.

Inspection, eighteen hours after death.—Cutaneous vessels of the head and neck turgid. A fracture traversing the squamous part of the right temporal bone, and of the parietal, running partly in the groove for the spinous artery. Membranes of the brain much congested. Blood extravasated beneath the pia mater on various parts of the cerebral surface, and about an ounce and a half effused under the dura mater at the part corresponding with the fracture. A small quantity of blood extravasated in the cortical structure of the brain, at the under surface of the middle lobe on the right side. A fracture of the cartilaginous junction of the upper bone of the sternum with the middle. Slight extravasation in the anterior mediastinum. Sanguineous congestion of the lungs. A fracture extending through the body of the seventh cervical vertebra, with such displacement of the upper part of the bone forwards as to compress the medulla. Pia mater investing the cord at the seat of the injury unusually injected, and the medulla itself softened. Kidneys healthy. *A small quantity of urine remaining in them distinctly acid. The bladder full of urine highly ammoniacal.* It presented, at the upper and under part, a light red colour, but around the sides it had a dark brown or deep chocolate hue. On stripping off portions of the mucous membrane, this remarkable appearance was found to arise from a diffused extravasation of blood.

Case V.—*Fracture of the eighth dorsal vertebra.*

Samual Small, æt. 36, a labourer, admitted Jan. 28th, 1836, under the care of Mr. Scott, having met with the following accident. Whilst walking along a street and stooping somewhat forwards, he was suddenly knocked down by a sack of coffee (about 3 cwt.) falling upon his back from a crane to which it had been suspended at a height of

fifty feet. He complained of great pain in his back and chest, and had lost all sensation in, and power of moving, the lower extremities. There was priapism, and a distinct depression about the lower dorsal vertebræ

29th.—Considerable constitutional irritation; stomach rejected every thing that was swallowed. Great pain experienced in the back; fæces passed involuntarily, and not more than three ounces of pale-coloured acid urine were drawn off in the course of twenty-four hours.

31st.—Stomach still continued very irritable; less fever, but pulse feeble and intermittent; rather more urine secreted.

Feb. 3d.—Irritability of the stomach diminished; pulse quick; abdomen tense, tympanitic, and painful on pressure; urine abundant in quantity, of its natural colour, and acid.

14th.—Diarrhœa and vomiting; abdomen tympanitic and tender; pulse full and quick; countenance anxious; urine acid.

15th.—Urine high-coloured, but acid; stomach rejects every thing.

16th.—In every respect worse; constant restlessness; countenance anxious; respiration difficult; bowels relaxed; urine alkaline.

17th. — Gradually getting worse; urine highly ammoniacal.

Died on the 19th.

Inspection, thirty hours after death.—Lungs in a state of engouement, and the pleuritic surfaces behind connected by recent adhesions. Blood extravasated in the posterior mediastinum, and in the subserous cellular tissue on each side of the spine. A fracture through the body of the eighth dorsal vertebra, with displacement of the inferior portion backwards, so as to compress the medulla. Spinal cord at the seat of injury softened, and infiltrated with purulent matter. Theca around highly inflamed. Peritoneum generally somewhat injected. Cæcum and sigmoid flexure of the colon connected to the fundus of the bladder by recently effused lymph. Bladder apparently much distended, mounting up considerably above the pubes. On opening it less urine found than was expected, the organ being displaced forwards and upwards. Considerable turgescence of the vessels of its mucous coat, which was partially coated with loose lymph. Urine very ammoniacal and turbid. Between the right side of the bladder and the cæcum and commencement of the colon there were about four ounces of pus, contained in a cyst of loose lymph, which appeared to be giving way or ulcerating towards the colon. At the part of the colon corresponding with this spot there was a congested state of the vessels, with slight extravasation of blood. Both ureters and pelves of the kidneys inflamed and distended with purulent and ammoniacal urine, more especially the right. Structure of the kidneys unusually vascular, friable, and readily broken down with the fingers. Abundant suppuration between the bladder and rectum, and throughout the loose cellular tissue of the pelvis, which accounted for the displacement of the bladder.

These are not the only cases that I could detail in illustration of the nature of the lesions of the urinary organs in paraplegia after fractures of the spine, but they are, I apprehend, amply sufficient to indicate the original seat of disease. In my former communications I argued, that the alkaline property of the urine, in these cases, is originally dependent upon the diseased state of the bladder, as in ordinary inflammation of this organ, where the mucus, which is abundantly secreted, being highly alkalescent the urine is decomposed, or acquires similar properties. I stated, however, as a secondary cause, that in consequence of the febrile excitement of the system, and the debility which takes place after these severe injuries, as well as of the extension of inflammation along the mucous lining of the ureters, the kidneys also become liable to secrete alkaline urine; in which case, as the secretion is more stimulating than healthy urine, it tends to keep up and aggravate the inflammation already existing in its unprotected mucous membrane. I endeavoured further to show, that the observations of Mr. Smith, of St. Mary's Cray, Kent*, which tended to a different conclusion, by no means warranted the inferences that were drawn from them.

In Case I., the patient being a female, an excellent opportunity was afforded for performing an experiment similar to that described by Mr. Smith; but the result was widely different. Thus it appeared, that the urine was secreted in

* Med. Gaz. vol. ix. p. 661.

its natural acid state, although it was voided ammoniacal, clearly showing that it must have acquired this property in its passage through the bladder. In order, however, to clear up any doubt that might exist in this experiment, as to the fluid evacuated at the termination of half an hour having arrived from the kidneys in the interval, this fluid as well as the water last removed after repeated injections, and which was found to produce no action upon the reddened litmus paper, were kept for 44 hours, at the end of which time the properties of the latter were found to be unchanged. The former, however, had become decomposed, and was strongly ammoniacal. In Case III. it appears that on the tenth day after the accident the urine was secreted in its natural condition, although the mucus with which it was loaded was alkalescent, but at a subsequent period, when the bladder was more affected, and when probably the kidneys had began to participate in the disease, the urine was likewise alkaline. In this case, the patient having survived for nearly five months, the inflammation extended from the mucous membrane of the bladder along the uterus to the kidneys, the pelves of which were in part coated with lymph. In Case IV., however, where the injuries were of so severe a nature as to occasion death so early as on the sixth day after the accident, the bladder only became affected, the urine in it having been highly ammoniacal; whereas the kidneys were healthy in structure, and the little urine contained in them distinctly acid.

That the alkaline property of the urine in these cases is not wholly attributable to its being retained a sufficient time to undergo decomposition, as contended by Dr. Burne *, in his notice of my former remarks on this subject, is satisfactorily shewn by the first case, in which care was taken that the urine should dribble away as it arrived from the kidneys. I might adduce many objections to this opinion, but will confine myself to one. I have observed, in two or three cases of retention of urine from enlargement of the prostate gland, in which the urine was drawn off twice in the course of the day, that although the bladder was seldom, if ever, completely evacuated, the urine was acid. But on retaining an elastic gum catheter in the bladder, although the organ was relieved more frequently than before, considerable irritation was excited, and the urine was rendered turbid and ammoniacal; for it appeared that the bladder became intolerant of the additional irritation caused by the constant pressure of the catheter; inflammation, therefore, was set up, alkaline mucus was abundantly secreted, and the urine underwent decomposition. In these instances, then, it is perfectly clear that the ammoniacal condition of the urine was not owing to mere detention.

In the case of paraplegia related by Dr. Burne, the point of the catheter, although the instrument was not retained in the bladder, appears to have excited ulceration in the mucous membrane in three separate places. The same process was found to have been set up in Case I., in which an elastic gum catheter was kept in the bladder for seven days. I should never in future adopt this proceeding, the frequent introduction of an instrument being far preferable; since when deprived of sensibility, this organ is so ill able to resist injurious impressions.

Mr. Stanley, in an interesting paper contained in the 18th volume of the Transactions of the Royal Medical and Chirurgical Society, has adopted the views of Mr. Smith, although, in the two cases of injured spine which he quotes, the bladder appears to have been the chief, if not the sole seat of disease. Mr. Stanley seems to imagine, that after injuries of the spine the affections of the urinary organs are owing to irritation communicated from the spinal cord to the kidneys through the medium of the nerves passing from the lumbar ganglia to the renal plexus. That such may be the case in particular instances, I would not venture to question; but that the lesions of these organs, in cases of paraplegia from injury to the spinal cord, generally arise in this way, I think the facts stated in this paper tend greatly to disprove. In Case II., in which the spinal cord was evidently much injured, as evinced by the total loss of the power of moving the lower extremities, there was no affection whatever of the urinary organs; whereas in no case that I have hitherto met with, where sensation was impaired, have they escaped disease.

The means which I believe will be found of most service in these cases, are, in the first instance, the frequent

* Med. Gaz. vol. xiii. p. 353.

evacuation of the bladder by the repeated introduction of an elastic catheter, and afterwards, when the urine is rendered alkaline, the internal administration of acid medicines, and the injection of the bladder with tepid water. The relief afforded by the latter proceeding was well marked in Cases I. and III.

Case V. is adduced as shewing the extensive disorganization which sometimes takes place even in a short time; for there was no evidence of urinary disease until within four days before death. But besides the changes already alluded to, these cases afford many other interesting points for consideration in the disturbance in the functions of different organs—as the torpid state of the bowels in Case II.; the diminished secretion of urine for some days after the accident in Cases IV. and V.; and the very irritable state of the stomach in Case V., in which the eighth dorsal vertebra was the seat of fracture. There is also one circumstance connected with Cases II. and III. which should not pass without notice. Thus it is supposed that a direct connexion subsists between nutrition and the due supply of nervous influence. Now, these patients were admitted into the hospital within a few days of each other, and both, at the time of the accident, were in excellent health, and had their muscles well developed. At the end of four months, however, there was a remarkable difference in the extent of atrophy which the inferior extremities had suffered in the two cases. In Case II., in which sensation was unimpaired, there was undoubtedly a decided alteration in the condition of the muscles, yet the degree of atrophy which they had undergone bore no comparison to that remarked in the wasted and attenuated limbs of the other, which had been deprived both of sensation and of muscular power.

Case IV. is also interesting, as an example of a severe injury of the head, unaccompanied by any decided cerebral symptoms for several days afterwards.

Having alluded to the valuable observations by Mr. Stanley, on irritation of the spinal cord and its nerves, it may be interesting to mention the particulars of a case of irritable bladder, very analogous to the case of Charlotte Sepping, described by Mr. Stanley, in which I was induced to adopt the same plan of treatment, and certainly with equal benefit.

Irritable Bladder.

Ellen Molay, an Irishwoman, aged 27, applied at the London Hospital for relief as an out-patient, at the commencement of September, 1833. She was suffering from extreme irritability of the bladder, being obliged to pass her water every half hour or hour, the act being attended with the most distressing sensations internally, described by her as bearing-down pains. Her urine was acid, high-coloured, and by no means abundant. It had been coming on gradually for about a month; it deprived her of rest at night, her health was greatly impaired, and she was so weak as scarcely to be able to walk to the hospital. The carbonate of soda, carbonate of iron, uva ursi, liquor potassæ, narcotics, cathartics, opiate enemata, pareira brava, and every kind of medicine likely to be of service, were tried, without producing the slightest relief.

Feb. 24th, 1834.—I directed an issue to be made on each side of the lumbar vertebræ, and the decoction of bark, with carbonate of soda.

March 12th.—Had been gradually improving from the time that the issues had been made. Made water much less frequently, was able to rest at night, and her general health greatly improved.

19th.—She was not so well, the irritability of the bladder and uneasy sensations having increased since her last visit. On examining the issues I found that they were partly closed up, and that there was very little discharge from them. They were ordered to be dressed with peas which had been macerated in a saturated solution of the sulphate of copper.

April 2d. — Greatly improved in health, quite free from pain, and not disturbed in the night oftener than four or five times. A free discharge from the issues.

June 21st.—Health completely re-established; seldom disturbed oftener than twice during the night. The issues had closed about four days ago.

July 12th.—Discharged cured.

St. Helen's Place,
May 13, 1836.

CONTRIBUTIONS TO THE DIAGNOSIS OF THORACIC DISEASE.

NO. IV.

By Charles Cowan, M.D. E. & P.

ON THE EXPIRATION.

Expiration — How produced — How modified by Disease—Its importance in the early Diagnosis of Tubercles.

My attention was first directed to the study of the different modifications of the *expiration*, both in health and disease, by the observations of Dr. Jackson, in the wards of La Pitié, who strongly insisted upon its utility as an early and valuable indication of increased density of the pulmonary parenchyma. In the writings of Laennec, Andral, Piorry, Williams, Raciborski, and others, the subject has not met with any special consideration; and since subsequent experience has satisfied me that it is neither destitute of utility or importance, perhaps the following remarks will not be unacceptable to those who feel that auscultation has still its difficulties and uncertainties to encounter.

If we listen to the respiration of an adult and healthy chest, beginning at the trachea, and following its subdivisions until we arrive over the vesicular structure of the lung, we find that the ingress and egress of air are in the upper portions of the tube distinctly audible, and that they produce sounds nearly, if not exactly, similar to each other. In proportion as the bronchi become smaller, more numerous, and surrounded with the pulmonary parenchyma, the respiration gradually predominates, and over the deep vesicular portions of the lung it is alone heard. To an attentive ear, the period of expiration is, however, in the majority of cases, not wholly without sound, but the murmur is distant, deep-seated, very feeble, comparatively short in duration, appearing to originate round the root of the lung in the larger bronchi, and evidently not occupying the same locality as the inspiration. In some individuals the expiration is not at all heard, while in others it is more distinct; though in no instance, where disease is absent, can it be at all confounded with the inspiratory murmur. We have found it occasionally rather more distinct in children than in adults; but even here it is not unfrequently absent, and does not at all necessarily accompany puerile respiration.

Laennec, in his description of the natural respiration, seems to have overlooked the distinction we are insisting upon; for he says, "if we apply the stethoscope to the healthy chest, we hear, during *inspiration and expiration*, a slight but very distinct murmur, indicating the penetration and expulsion of air in the pulmonary tissue *; thus evidently implying the similarity of both sounds, or at least omitting to point out either the utility or possibility of distinguishing them. Our preceding remarks prove that we consider this description of natural respiration essentially incorrect; and we hope to point out, in the course of the following observations, that the examination of the phenomena of expiration, apart from those of inspiration, cannot be regarded as a useless refinement, but as multiplying the elements of accurate diagnosis.

It may very naturally be asked, how is it that the entrance of the air into the lung is so distinctly heard, while its passage outwards is almost inaudible? This fact, we think, must chiefly be explained by reference to the elasticity of the lung itself, which has been so ably insisted upon by Magendie, and proved by that sagacious observer to play so important a part in the phenomena of natural and morbid respiration.

If we inflate a recent healthy lung, and leave the trachea unobstructed, the elasticity of the pulmonary tissue will rapidly, and almost entirely, expel the contained air, the organ collapsing upon itself, and diminishing to perhaps four-fifths of its volume when distended. The power with which the air is expelled is considerable, and the lung is emptied far more suddenly and abruptly than is the case in natural expiration. The force and rapidity of the phenomenon is in fact such, that it is impossible not to feel that the expiration must be much more dependent on this property of the lung, than on either the contraction of the muscles or elasticity of the

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* Vol. i. p. 46; 3d edition.

ribs and cartilages. Indeed, the collapse of the healthy lung is checked, both in its rapidity and amount, by the construction of the thorax, the cavity of which can never diminish to the same extent as the lung itself is capable of doing; while the complete collapse of the latter is arrested by the pressure of the atmosphere from without. The lung, therefore, at the close of expiration, is in a state of incomplete collapse, its elasticity continuing active, but incapable of still further diminishing its volume, because this could not be effected without a vacuum being produced in the chest. The truth of this remark is illustrated by the tense and arched state of the diaphragm after death.

In healthy expiration, therefore, it is the retreat of the lung upon itself which principally expels the inspired air; and the elastic integrity of the organ is consequently highly important for the proper performance of the respiratory function. Why the passage of the air outwards should be almost inaudible when compared with the respiratory murmur, may, we think, be explained by reference to the physical conditions above alluded to. The pulmonary vesicles individually contract upon the air which distends them, forcing it into the bronchial ramifications, where it successively accumulates and acquires in the larger tubes an increase of volume and rapidity, which, through the very imperfect conducting medium of the healthy pulmonary tissue, gives rise to the feeble and distant sound characteristic of the expiratory murmur. The phenomenon is, in some respects, similar to the circulation from the capillaries into the large venous trunks; the rapidity of the blood's progress in the veins being the accumulated result of its passage in the numerous smaller channels with which they communicate.

The normal degrees of intensity of the expiratory murmur may depend on the variations which, no doubt, exist in the natural elasticity of the lungs of different individuals. If this property is feeble, all other conditions remaining the same, the expiration is slower, and no perceptible sound is produced. If, on the contrary, the elasticity is considerable, the expiratory murmur is also augmented. It should be remembered, the expired air finds but a very slight obstacle to its progress from the vesicles into the smaller bronchial ramifications, since this is effected by the spontaneous obliteration of the spaces it previously occupied, the lung itself accompanying the retreating air; but the volume of the larger tubes being increasingly disproportionate to the aggregate area of the pulmonary vesicles, and the elasticity of the lung being principally seated in its parenchymatous portions, which collapse around the larger and less yielding tubes, we can easily perceive that both the volume and rapidity of the air in the latter must be increased, and thus satisfactorily account for the nature and locality of the expiratory sound. During *inspiration*, on the contrary, the air has to overcome the resistance of the lung; it must forcibly distend the elastic vesicles, and this rough species of contact is one of the immediate causes of the inspiratory murmur.

We have not, in the preceding observations, complicated the subject by referring to the muscular contractility of the lung, which is undoubtedly liable to numerous variations, and must not unfrequently modify the character of the respiratory sounds. We have no means of accurately testing the amount of its influence, but do not conceive, that, within the limits of health, it would give rise, in regard to the expiration, to other considerations than those we have devoted to the simple phenomenon of elasticity.

Let us now examine the effects of *disease* upon the expiration. It is evident, that when the particular property of the lung we are now considering is seriously impaired, expiration must, in proportion, depend on the expiratory muscles, aided by the elasticity of the ribs and cartilages. Under these circumstances, the thoracic parietes collapse upon a distended, instead of following a retreating lung; and the air is expelled by mechanical pressure upon the pleural surface, instead of by the proper elasticity of the pulmonary tissue itself. As a consequence of this, the expiration is incomplete; the diminution of the thoracic cavity being to a certain extent impeded, rather than aided, by the condition of the lung, and because the diaphragm would have no tendency to mount upwards but what resulted from the pressure of the abdominal viscera upon its concave surface.

The inspiration must also be equally diminished, and a considerable portion of the base of the lungs be comparatively motionless. The organ would become, physically and functionally, unequally active, the respiration being most complete in those parts which corresponded to the more elastic regions of the chest; and to the ear there would be proportionate variations in the intensity of the respiratory murmur.

A second result of the condition we are describing, *is permanent enlargement* of the thorax, in consequence of the increased efforts made by the inspiratory muscles to introduce a sufficient quantity of air, over and above what remains after the very imperfect expiration. This unnatural distention inordinately expands the pulmonary tissue, and either rarifies the lung by destroying its vesicular structure, or (what is more common) produces hypertrophied enlargement of the organ. The increased size of the thorax depends, therefore, on the great activity of the inspiratory muscles, and the enlargement of the lung can only be regarded as a secondary consequence of the former. Dr. Stokes, in his interesting paper on Vesicular Emphysæma, published in the Dublin Journal for March, 1836, lays, in our opinion, much too great stress upon the hypertrophy of the lung, as a *cause* of enlarged thorax: we think it is but rarely the first link in the chain, but in general originates in some diminution of the pulmonary elasticity, and is directly the result of the inspiratory muscles becoming, in consequence, unusually active.

If we suppose the lung not to be morbidly affected in any other respect than by its diminished elasticity (which is seldom the case), auscultation would discover nothing more than very feeble or inaudible inspiration, and probably no expiratory murmur whatever. But should the smaller bronchi be obstructed by viscid mucus or thickened membranes, a sibilant wheezing would be detected during the expiration; the current of air being unnaturally accelerated, in consequence of the normal proportion between the vesicles and smaller tubes being destroyed. This is not unfrequently the case in simple bronchitis, which, by rendering the entrance of air more difficult, weakens or annihilates the inspiratory murmur, while it produces the expiratory wheezing; and when seated in the smaller tubes, we are inclined to think, also temporarily diminishes the pulmonary elasticity. We have also observed, that in certain cases of emphysema, where the elasticity is wholly destroyed, that the subsidence of the parietes upon the spongy surface of the lung after a deep inspiration, combined with the generally more or less obstructed state of the smaller bronchi, produces a superficial, though feeble, murmur, not always easy to distinguish from the effect of inspiration itself.

The expiration, therefore, with the exception of the last instance, is either inaudible or diminished, where the pulmonary structure is rarer than natural; or characterized by numerous bronchi depending on the diminished calibre of the bronchial ramifications.

Let us now examine the effect of *increased density* of the lung upon the expiration. When hepatization has taken place, the well-known effect of bronchial respiration is the consequence, and where, in addition to this, a cavity is formed, cavernous or tracheal respiration is produced. Both these sounds are familiar to auscultators, and are satisfactorily explained by the increased conducting power of the lung. We need only remark, at the present moment, that they are usually double, *i. e.* heard during expiration as well as inspiration, as is naturally the case in the trachea and larger bronchi.

But there are many intermediate changes of density between a healthy and hepatized lung, more especially in the progress of tubercular disease; and we have found the study of the expiration, under these circumstances, of the greatest value in aiding, and sometimes for forming, our diagnosis. In cases of scanty miliary tubercular deposit, scattered through an otherwise healthy parenchyma, we believe it will be more easy to estimate the changes occurring in the expiration than in the inspiration, and, in several instances, the former has presented decided modifications, when neither the inspiration or percussion were appreciably affected. Besides, the inspiratory murmur may be locally stronger and weaker from a variety of causes, whereas a decided increase in the expiratory sound, almost always depends on *increased density* of the lung; and, by careful comparative examination, very slight deviations from the

healthy state may be detected. When studying the expiration, it is not merely the amount of sound that we seek to appreciate, but its being more or less superficial, and appearing to occupy the same locality as the inspiration; of which it appears at first more like a distant echo, but, with the progress of the morbid changes, ultimately becomes a repetition. There are cases, where one or more of the larger bronchi are suffering from compression, where the expiration is increased, though the density of the lung is unaffected; but, under these circumstances, the sound is distant, and can be traced to its point of origin. Occasionally the expiration is more distinct than the inspiration, and without attention it may be, and no doubt has often been, mistaken for the latter; we should of course be guided by determining its coincidence with the elevation or depression of the ribs.

The reason of our attaching so much importance to this stethoscopic sign, is its applicability to an early period of disease, when accurate diagnosis is at once so desirable and so difficult. Our knowledge of the precise portions of the lung, where tubercles are almost invariably first deposited, enables us to appreciate slight local changes in the character of the respiration, which, with a less certain pathology, would be of little practical utility, but, from the uniformity of the morbid alterations, the attention of auscultators cannot be too much fixed upon all those physical indications, however minute, which characterise the earlier stages of tubercular disease.

We believe that auscultation, as a means of acquiring this very desirable knowledge, is in general underrated, and that its utility is more frequently limited by inadequate study and want of attention to minutiæ, than by any inherent deficiencies;—in short, the auscultator is more to be blamed than his instrument. We therefore direct the attention of stethoscopists to the examination of the expiration in general, but especially with reference to the earlier stages of tubercular disease, believing that familiarity with its modifications will not only, in conjunction with other data, assist our diagnosis, but, in some instances, mainly contribute to its formation.

The effects of disease upon the invisible physical qualities of our tissues, is an interesting but comparatively unexplored subject of research. Their density, cohesion, and elasticity, are, no doubt, constantly varying with the nutritive and nervous functions, but in no organ would any physical disability be more sensibly felt than in the lungs, both from their delicate and complicated structure, the perpetuity of their movements, and the dependence of respiration on the maintenance of their physical health. Various forms of dyspnœa, emphysema, and dilated bronchi, may be the consequence of only moderate diminution of pulmonary elasticity, and a variety of symptoms, which after death are explained by no appreciable organic alterations, and which, for the sake of saying something, are referred to an unknown nervous idiosyncrasy, might simply depend on some diminution or increase of a physical property, the natural or morbid condition of which we are unaccustomed to investigate, or have no accurate means of determining. The researches of Dr. Stokes, in the paper already referred to relative to muscular paralysis from contiguity to inflamed serous membranes, may be cited as illustrations of the utility to be derived from the inquiries in question.

We will, in a future Number, venture a few reflections on the elasticity of the lung as a cause of puerile respirations, and inquire how far pressure upon the inspired air may be necessary to the healthy performance of the pulmonary functions.

Bath, 14th May, 1836.

TREATMENT OF FRACTURES OF THE STERNAL END OF THE CLAVICLE.

To the Editor of the Medical Gazette.

Sir,

Your number of the 14th instant contains a notice of a new mode of treating luxations of the sternal end of the clavicle, by M. Velpeau.

This mode of treatment I have been for some time in the habit of employing in cases of *fractured* clavicle, as I recollect, on the suggestion of M. Desault. In some instances I have made use of a triangular pouch, made of the material of bed-ticking, and padded with

cotton wool for the elbow; in others, I have relied entirely on firm bandages, applied nearly, as far as I can judge, in the manner described in that paper. By this method I conceive that the three following objects are attained:—

1st, The arm being drawn forwards over the chest, and the hand placed on the opposite shoulder, a great portion of those muscles which have a tendency to approximate the extremities of the fractured bone, and which the ordinary mode of management is adapted to *antagonize*, is completely *relaxed*.

2dly, The elbow being rather forcibly borne upwards, and pressure made beneath it in the direction of the shoulder-joint, on the injured side, a most effectual extension is obtained in the longitudinal axis of the clavicle.

This extension is rendered very evident on observing the position of the shoulder after the apparatus has been fixed, for it is elevated considerably above the level of the opposite shoulder, and directly borne away from the point of attachment between the sternum and clavicle.

3dly, By this method of treatment, those dreadfully painful bruises and excoriations are avoided which the greatest care cannot prevent, and which generally occur to a very distressing degree under the application of the figure-of-8 bandage, or shoulder-strap.

I have not had an opportunity of employing this mode in dislocation of the sternal end of the clavicle; but in all cases where extension of that bone is required, I should have perfect reliance on its efficiency in accomplishing that object with the greatest certainty, and with the least possible inconvenience to the patient.—I am, sir,

Your obedient servant,

Alfred J. Wood.

Gloucester, May 19, 1836.

ON SOME OF THE USES OF SENSATION.

Being the Substance of a Lecture delivered at the Royal Institution,

By Herbert Mayo, F.R.S.

Professor of Anatomy in King's College, London, Senior Surgeon to the Middlesex Hospital, &c.

Our sensations are of two kinds, internal and external; the former comprehend hunger and thirst, fatigue, pain, and all the other feelings which give us information of the wants or condition of the inward frame: through the latter we perceive the world around us, and learn our relation to it.

Our external sensations are referable to eight classes; of which six have special organs.

Sense.	Organ.
1. Smelling,	the nose.
2. Taste,	the tongue and soft palate.
3. Sight,	the eye.
4. Hearing,	the ear.
5. Touch or contact,	the integuments, tongue, &c.
6. Sense of effort or resistance,	the voluntary muscles.

The sensations which are not excited in special organs, but are felt through the frame generally, or in more organs than one, are,

7. Sensations of heat and cold.

8. Sensations of motion. There is a feeling attending the sudden beginning or retardation or acceleration of motion, which is independent of the sense of contact excited on one or other of the aspects of the body, and of muscular effort. When one is in a state of equable motion, as when one lies upon the ground, (there being then the earth's motion only to be taken into account), or in the perfectly smooth and uniform motion of a boat gliding down a river, we *feel* that we are at rest. Any sudden alteration of the quantity of motion in us we *feel* by the sense of motion. The existence of the same sense may be rendered evident in another manner. After travelling a short distance in a rough carriage, (to the city, for instance, in an omnibus), when the carriage has stopped, and you have remained on your seat a few seconds, if you rise suddenly, you feel, for an instant or two, as if the carriage were still in motion: this is the sense of motion continuing, *after the external cause has ceased*,—as the sensation produced by a flash of lightning remains in the eye longer than the light itself.

There are certain leading ideas respecting the external world, which are introduced into our minds collaterally by sensation. These are *locality*, *outness*, and *direction*.

Locality, or an idea more or less definite of place, attends the exercise of every sense. No one can doubt that he

smells with his nose, or tastes in his mouth; or, to put the idea in a still less disputable form, that tasting and smelling take place in the head, and not in the trunk or limbs.

Outness; the idea of something without us, as the cause of sensation, is not excited by smelling and tasting, nor by hearing necessarily, nor by changes of temperature, nor necessarily by motion; but it is irresistibly conveyed to our minds, by sensations of contact, resistance, and vision. The last instance alone is at all questionable; but it will be remembered, that when Chesselden's patient was restored to sight, he did not think himself dreaming, or lost in an inward world of sensation, but he *drew back*, thinking that the objects which he saw *touched his eyes.*

Direction.—Ideas of direction are excited in us by hearing, resistance, motion, and vision. *Simple contact* excites no idea of direction; but *series of contacts,* whether successive or simultaneous, are put together by the mind so as to convey ideas of definite extension.

Of the Sense of Direction.

1. Through hearing we obtain ideas of direction. Mr. Wheatstone has ingeniously conjectured, that our notions of audible direction may depend upon the excitation of the parts of the auditory nerve which are distributed in the semicircular canals; all, however, that we as yet *know* upon the subject (it hardly deserves to be considered a law of audition) is, that *sensations of sound are referred to a direction exactly opposite to the direction of the wave or impulse which excites them.*

2. The idea of direction obtained by the sense of effort is very definite. We believe *the direction of the resistance to be oppposite to the sensible direction of the effort.*

3. The idea of direction obtained by change of motion obeys a parallel law to what holds in the three preceding instances. The new motion is perceived to be in *a direction opposite* to the surface of contact, when the body is stopped or impelled by contact, or to the direction of the inclination of the body, when the body falls backward or to one side, or forward, in suddenly accelerated or retarded motion.

4. The law of visual direction corresponds, in a great degree, with the preceding, but not absolutely. The apparent direction of any point of an object does not depend upon the angle at which the rays proceeding from it fall upon the retina. But whatever be the angle of the incident ray, the point of the retina, on which it falls, sees *in the vertical direction only.* Nature inverted the picture of objects on the retina, in order to bring each point of the picture formed on the retina vertical to the point of the external object, the rays proceeding from which are there collected; and so to make the visual and tangible directions of objects correspond. The law of visual direction admits of easy demonstration by Mr. Mayo's experiment, of compressing the globe of the eye at different points, when the spectrum produced is found to be always opposite to the point of the retina excited to vision by the pressure made, *at whatever angle that pressure is made.*

Relation of Sensation to Instinct.

Instinct is a blind tendency to will one or a succession of voluntary motions. Particular instincts are excited by definite sensations. A feeling of uneasiness in the chest leads the new-born infant to breathe; the flavour and taste of the pleasant food introduced into its mouth leads it to swallow; a disagreeable taste leads it to sputter out that which offends it. Smell and taste are the guides of the humblest instincts. It is wonderful, however, how far they reach. Bees entertain personal aversion to certain individuals through this cause. Mr Mayo was told of a family, one individual of which, a child, is an instantaneous favourite with all dogs and tame birds which approach him. On his leaving home one day, he was persuaded to leave a cricket ball he had held in his hand during the morning; a Newfoundland dog, which belongs to the family, took the ball in his mouth, and would not part with it for some hours, even for its food. It is a wonderful fact, that in human beings this sense may become a guide to permanent personal liking and aversion, when other avenues of observation are excluded. In the case of James Mitchell, who was born blind and deaf, this phenomenon was noticed. Dugald Stewart says, " when a stranger approached Mitchell, he eagerly began to touch some part of his body, commonly taking

hold of his arm, which he held near his nose, and, after two or three strong inspirations through his nostrils, appeared decided in his opinion. If it happened to be unfavourable, he suddenly went to a distance with the appearance of disgust; if favourable, he showed a disposition to become more intimate, and expressed by his countenance more or less satisfaction."

More discrimination has been attributed to this sense, however, than properly belongs to it. It was thought by many naturalists that birds discern their prey at a distance by the scent. The following statement by Audubon shews that sight is the sense they really use.

"My first experiment," says Audubon, "was as follows:—I procured a skin of our common deer, entire to the hoofs, and stuffed it carefully with dried grass until filled rather above the natural size—suffered the whole to become perfectly dry, and as hard as leather—took it to the middle of a large open field—laid it down on its back with the legs up and apart, as if the animal was dead and putrid. I then retired about a hundred yards, and in the lapse of some minutes, a vulture, coursing round the field tolerably high, espied the skin, sailed directly towards it, and alighted within a few yards of it. I ran immediately, covered by a large tree, until within about forty yards, and from that place could spy the bird with ease. He approached the skin, looked at it with apparent suspicion, jumped on it, raised his tail, and voided freely (as you well know all birds of prey in a wild state generally do before feeding),—then approaching the eyes, that were here solid globes of hard, dried, and painted clay, attacked first one and then the other, with, however, no farther advantage than that of disarranging them. This part was abandoned; the bird walked to the other extremity of the pretended animal, and there, with much exertion, tore the stitches apart, until much fodder and hay was pulled out; but no flesh could the bird find or smell; he was intent on discovering some where none existed, and, after reiterated efforts, all useless, he took flight and coursed about the field, when, suddenly wheeling round and alighting, I saw him kill a small garter-snake, and swallow it in an instant. The vulture rose again, sailed about, and passed several times quite low over the stuffed deer-skin, as if loth to abandon so good-looking a prey. Judge of my feelings when I plainly saw that the vulture, which could not discover, through its *extraordinary* sense of smell, that any flesh, either fresh or putrid, existed about that skin, could at a glance see a snake, scarcely as thick as a man's finger, alive, and destitute of odour, hundreds of yards distant. I concluded that, at all events, his ocular powers were much better than his sense of smell.

"*Second experiment.*—I had a large dead hog hauled some distance from the house, and put into a ravine, about twenty feet deeper than the surface of the earth around it, narrow and winding much, filled with briars and high cane. In this I made the negroes conceal the hog, by binding cane over it, until I thought it would puzzle either buzzards, carrion-crows, or any other birds, to see it, and left it for two days. This was early in the month of July, when, in this latitude, a dead body becomes putrid and extremely fœtid in a short time. I saw from time to time many vultures, in search of food, sail over the field and ravine in all directions, but none discovered the carcass, although during this time several dogs had visited it, and fed plentifully on it. I tried to go near it, but the smell was so insufferable when within thirty yards, that I abandoned it, and the remnants were entirely destroyed at last through natural decay. I then took a young pig, put a knife through its neck, and made it bleed on the earth and grass about the same place, and, having covered it closely with leaves, also watched the result. The vultures saw the fresh blood, alighted about it, followed it down into the ravine, discovered by the blood the pig, and devoured it, when yet quite fresh, within my sight*."

Mr. Mayo mentioned as an instance of the accurate visual perception of birds, that a partridge was on the ground close before him, and he was some seconds before he could see it, when told where to look for it: at last he discovered it; when, the instant the bird caught his eye, it sprung upon the wing. How is it that animals know that we are looking at them, or that men judge of the direction of the sight of others?

Dr. Wollaston, in a paper published

* The details of these observations were not read in the lecture.

in the Philosophical Transactions for 1824, advanced the opinion, that we judge of the *precise* direction in which others are looking, by the direction of the other features, not of the eyes: drawing this inference from the fact that a portrait may be made to seem to look different ways—the eyes, eyelids, and eyebrows, being drawn as turned directly towards the spectator,—by changing in the drawing the disposition of the other features.

Mr. Mayo shewed that the conclusion drawn by Dr. Wollaston was not just, and demonstrated the following to be the elements upon which our conception of the direction of the vision of others is founded.

1. We judge by immediate observation of the direction of the visual axis of one eye in a living person, or in a portrait. This is the more easily determined in the case of the human eye, through the circularity of the pupil, the *concentric* circularity of the iris, and the extent of the white area in which the coloured circles are set. This distinctness of direction, so characteristic of the eye of man, may be one of the causes why the human eye has such power over animals.

2. We judge of the direction of the other eye by the same process by which we judge of the direction of the first, in looking either at a drawing, or at a living person. If the second corresponds with the first, it of course strengthens the first impression.

3. Whichever way the features are turned, if their direction is not incongruous with that of the eyes, (and, except in squinting or convulsions, in a living head it cannot be so) the correspondent action and expression of the face corroborate the impression derived from the direction of the visual axis.

4. If, as in Dr. Wollaston's figures, the other features are actually incongruous with the direction of the eyes, if the *eyes*, and *eyebrows*, and *eyelids*, are drawn with one inclination, and the forehead and nose with another, then we are puzzled; and the same eyes which would look one way in a drawing—all parts of which should be correctly designed — seem to look a different way in the incorrect drawing. So the eyes belong, in such a case, to a face looking one way, and the face belongs to eyes that would be looking another way; and our conclusions are puzzled—something as when we cross the fingers, and feel a single object double.

5. Finally, if we make a drawing of a head without eyes, and then put in one eye accordant with the rest of the features and turned towards the spectator, the unfinished portrait looks justly at us. If the other eye is then drawn, but as if turned away, or squinting, the picture ceases to appear to look at us. If, however, we cover the squinting eye, the picture again seems to look at us. Of course there is the same difficulty in telling which way a living person who squints is looking, unless he covers the eye that is directed obliquely. We can tell (as in Dr. Wollaston's figures) which way one incongruous part is looking, and which way the other, when we observe them singly. When we look at both at once, we are puzzled, by striving to reconcile things that are irreconcilable, trying to make out to what common point features are turned, that are really turned different ways; and in this perplexity we lose for the time the true direction of both.

Some of the most remarkable circumstances among the instincts or faculties of animals have to do with the sense of direction. How is it that the annual migrations of birds are decided? What is it that influences different species to travel, at particular seasons, to remote countries? No doubt some sensation renders them at those times restless, and disposed to journey, and some other sensation decides the path which they choose: but how difficult it is to imagine the nature of the blind impulse to fly a definite journey, north or south.

There is another remarkable aptitude which is shared in different degrees by all animals—a facility, namely, of finding their way home, when taken away long distances, and by means which, one would think, must have prevented all knowledge of whither or in what direction they were carried The following, from Kirby and Spence's Entomology, is one of the most striking instances on record :—

In March, 1816, an ass, the property of Captain Dundas, then at Malta, was shipped on board the Ister frigate, Capt. Forrest, bound from Gibraltar for that island. The vessel having struck on some sands at Point de Gat, at some distance from the shore, the ass was thrown overboard, to give it a chance of

swimming to land: a poor one, for the sea was running so high that a boat which left the ship was lost. A few days afterwards, when the gates of Gibraltar were opened in the morning, the ass presented itself for admittance, and proceeded to the stable of Mr. Weeks, a merchant, which he had formerly occupied, to the no small surprise of this gentleman, who imagined that, from some accident, the animal had never been shipped on board the Ister. On the return of this vessel to repair, the mystery was explained; and it turned out that Valianté (for so the ass was called) had not only swam safely to shore, but, without guide, compass, or travelling map, had found its way from the Point de Gat to Gibraltar, a distance of more than 200 miles, through a mountainous and intricate country, intersected by streams; and that in so short a period that he could not have made one false turn."

How are we to account for such instances?

It is evident that such cases are removed from the conceivable operation of direct instincts. An animal might have an instinct to fly north, south, east, or west, as it has a tendency to swallow agreeable food; but it cannot intelligibly have an instinct to guide its return to any place whatsoever, in whatever manner it may have been carried from that place; and which often would have to guide it by a different path to that by which it was brought away. It is equally certain that in such a case the animal must be guided by the recollection of the direction in which it was originally carried. The difficulty is, to conceive how it can form a recollection sufficiently accurate for the purpose, and what the sense of direction is which it uses. Let us suppose an animal (a cat, for instance) confined in a bag, and carried five miles from home, or a much greater distance, and under circumstances which would prevent its scenting its way back: if it returns (and there are many instances like this authenticated), how did it know its path, how recollect the direction in which it had been carried from home? In such cases there are probably two means employed. One is the sense of direction, dependent on motion: the creature may have observed, in its progress, each change of direction, so as to recollect at the end the mean direction in which it had travelled. This is, no doubt, more than human beings can do: but an animal, on the other hand, cannot carry away in its recollection the overture of a new opera, heard for the first time, and play it without missing a bar; but a practised performer, with a fine ear, can do this: why may not animals recollect other impressions with similar wonderful precision, although we cannot? In the cases which are now referred to, there often may occur another aid: after travelling to the neighbourhood of home, the animal may come upon some familiar track; which, possibly, may be some miles out of the true direction (its recollection of direction having served it only moderately), and by that it may be guided home: as a public speaker, who has prepared himself imperfectly for an harangue, after going something from the argument and losing himself, may come upon some old and familiar train of thought connected with the subject, and bring himself home by an often travelled path of reasoning.

In the kind of case referred to, the recollection of direction obtained by the sense of motion is probably the means which the animal employs. Or the agency of every other sense seems excluded in such instances. Where sight can be used as well, we must suppose it an important auxiliary. And the proof which we have of the extent to which animals can be aided by this sense to remember their way home, strongly corroborates the conclusion, that it is by recollected direction (obtained through different senses in different instances) that *all* the singular examples on record of this faculty in animals are to be explained.

The following facts respecting the training and powers of carrier-pigeons were obtained by Mr. Mayo from a practical person. They prove, that the carrier pigeon *sees* its way home; retracing its path in part by recollection of its several stages,—in part by recollection of visual direction.

Carrier-pigeons, of which the Dutch is the best breed, are thus trained:—At eight to ten weeks of age they begin to *run*, or to make flights of from four to five hours from the nest. They are then strong enough on the wing to commence their education. The pigeon to be trained is first taken no greater distance than a mile from home,

and tossed into the air; when, after flying round and round, and rising some height into the air, it wings its way back. This lesson is repeated five or six times in as many days. The bird is then carried to the distance of two miles and tossed. This lesson is repeated twice. The bird is next carried three miles, and tossed; and this lesson is likewise repeated two or three times. The bird is then carried six miles, and then twelve, then twenty-four, then forty-eight, then ninety-six, and so on, in a geometrical ratio. Each of these lessons is given once only. The longest flight that a carrier-pigeon has been known to make is 800 miles. In so long a flight the bird is supposed to pitch at night and roost, renewing its flight the following day.

When a trained-carrier pigeon is tossed, after making one or more circles it rises in a rapid spiral to an enormous height, before it takes its departure, and at that height it is supposed to make its journey. The speed of the Antwerp birds, which are lighter and more finely made than the English breed, is supposed to be a mile a minute. They are more extensively used than is supposed in financial transactions: one eminent speculator at Antwerp keeps 1200 pigeons. The value of a pair of well-trained Dutch birds is five pounds.

The feats of these birds, when they are used for moderate distances, are seemingly effected directly through vision: the birds *see* their way. They rise sufficiently high to command a view of distant known objects, which their fine sight enables them to recognize at immense distances. If their sight is baffled, they lose their way; so, if they set off in foggy weather, they are sometimes two, three, or four days, or even a week, in making a passage which would otherwise occupy a few hours only: sometimes, under these circumstances, they never reach home.

It is evident that at greater distances (on the rule of training described already) there must be something more than direct vision to guide them; they must rely upon recollected direction as well as upon the sight of recollected objects; or they must employ some general ideas of direction, in which, perhaps, the position of the sun may help them, in addition to the sight of known terrestrial objects.

The Use of Sensation in Voluntary Muscular Action.

Dr. Yelloly observed, that in cases of loss of sensation affecting the hand and fore-arm, the muscular action of the limb is uncertain; or an anaesthetic patient will let drop objects which he attempts to carry, whenever his attention is accidentally turned to something else. As long as the patient looks at what he carries, and so long only, he holds it safely. Mr. Mayo, in the inquiries by which he discovered the uses of the facial nerves, was led to generalize the physiological principle, that *muscular action is dependent upon sensation.* We always, and necessarily, use one or other sense to guide and measure the muscular effort made. The patient who does not *feel* by the muscular sense the weight he carries, can yet carry it steadily as long as he measures that weight and the exertion he is required to make, by another sense. In muscular action it is the senses of effort and of contact, but mostly the former, by which we are principally guided. For instance, in the performance of a piece of music on an instrument (the eye being directed to the notes), the fingers are enabled to move with precision through the muscular sense and the sense of touch. In the ordinary positions of the body, which are maintained by muscular effort, it is the sense of the effort necessary, and of the direction in which we feel it to be required, that determines and measures, *and perpetually calls our attention to*, the requisite exertion. As an instance of the substitution of one sense for another in guiding muscular motion, Mr. Mayo mentioned having observed a blind woman thread a needle: she applied the head of the needle to the tip of the tongue, and moved the end of the thread along the tip of the tongue to the eye of the needle, *seeing*, as it were, with the tip of the tongue, or by its fine sensibility guiding the muscular action of the hand which held the thread.

The Use of Sensation in maintaining Equilibrium.

In the ordinary postures of the body, which are maintained by muscular effort, we rely principally on the sense of effort; but we likewise use vision. Thus we rest or support ourselves upon visible objects, of which we know from habit the distance: *we lean*

upon our eyesight as upon crutches. This is proved, when one unaccustomed to look down heights stands on the top of a tower, resting against the parapet: he knows he is safe, but he *feels* insecure; *his eyes no longer support him;* he feels as if he would topple over.

Giddiness is another form of disturbed sense of equilibrium. If a person turn round and round, on stopping he feels vertigo; this arises, in part, from the permanence of the sensation of rotatory motion, after the motion has ceased: like the continuance of perception, *proportionately* so long after looking at an electric spark: the giddiness is kept up by the eyes continuing to move, and to pursue the rotatory sensation. A curious experiment of Mr. Wheatstone's corroborates this general law of the *temporary persistence of sensation*, pointed out by Mr. Mayo. If a person hold a large sheet of paper before his face, and fix his eyes upon a spot in the centre of it, and then turn round rapidly several times, on stopping and lowering the sheet of paper he finds himself perfectly steady in his head; he experiences in his head no vertigo, no whirling; the lines of the room are perfectly stationary, which would have been in apparent motion, had he turned round looking at them. *But his legs feel unsteady, as if actually continuing to turn round, which they are disposed to do.* The muscular sense of the rotatory motion excited is persisting, though the motion has ceased.

ABDOMINAL ABSCESS,

WITH DISCHARGE OF PUS FROM THE RECTUM AND BLADDER.

To the Editor of the Medical Gazette.

Sir,

If the inclosed case of abscess of the abdomen is worthy of a place in your journal, you will oblige me by giving it insertion at your earliest convenience.

I remain, sir,
Your obedient servant,
R. R. Robinson,
Surgeon to the London Dispensary.

King William-Street,
May 25, 1836.

Anne Wicks, æt. 7, of strumous aspect, was admitted a patient at the London Dispensary, August 13, 1835. She had two or three slight falls nine weeks ago; three weeks after which she was seized with pain in the abdomen, sickness, and diarrhœa, and became greatly emaciated. The diarrhœa continued till within a few days, since which time the bowels have been confined. On the 10th instant, a tumor was first noticed to the right of the umbilicus, which increased rapidly, and burst this morning; discharging three pints of pus. For the last twenty-four hours she has passed no urine, but has just now voided, per urethram, about ℥ij. of apparently genuine pus. She is exceedingly weak, pale, and emaciated. There is a small nipple-like elevation to the right of the umbilicus, with a central opening, from which thick genuine pus is constantly pouring. Abdomen not much distended, but very tender, especially when touched. Sickness subsided; breathing slow and natural; no motion to-day; no appetite; no sleep; tongue red, moist; clammy perspiration; pulse thready, 90.

Ol. Ricini, ℥ij. statim.
Pulv. Dov., Hyd. Cretâ, aa. gr. iij. nocte maneque.
Potass. Carbon. gr. xx.; Acid. Tart. gr. x.; Inf. Gent. Co. ℥iss. ter die.
Milk diet.

14th.—Slept well. Bowels copiously opened: two portions of the motions shewn to me; the first was of a brown colour, loose, and streaked with purulent matter; the last was lumpy and of yellow colour. But little discharge from the orifice.

Perstet.

17th.—Orifice discharges healthy pus, but not copiously; rather stronger; bowels open. Takes food, which she before refused.

Perstet.

20th.—Takes food with relish; is stronger and more lively. Vomited yesterday incessantly for eighteen hours, during which time she brought up much green bile, and some of the same purulent-looking matter that was previously seen in the motions, none of which is now visible. Bowels freely opened daily; motions yeasty, and particularly offensive. The navel somewhat swelled, and a little pus discharged from the orifice; urine quite clear; pulse slower; tongue moist.

24th.—Very much more lively and

stronger (she has twice rallied in the same way before). Orifice closed up soon after last report, and has continued closed. A slight prominence, and impulse upon coughing, in that situation. Other parts of abdomen flat, and not painful on pressure. On the morning of the **21st** the vomiting again supervened, and lasted for fourteen hours. The fluid rejected was of greenish colour, large in quantity, and deposited a gelatinous substance upon standing. Appetite good; tongue quite clean and moist; pulse fuller; no sweats; rests well; motions pale yellow.

Perstet.

27th. — Vomited slightly yesterday, and the day before, but rejected only the food taken. Has frequently cried out the last two days from pain in the back, which is rather curved. Orifice continues closed, but there is a puffiness about it. Motions much more natural in appearance, brown, figured.

31st.—Paler, and rather more feeble; sleeps well; appetite bulimious; orifice continues closed; abdomen full, from flatus; pain at epigastrium, since she ate cheese yesterday; much purged; motions loose but not at all purulent; no vomiting; urine clear; back still painful; pain also in the posterior part of the right iliac fossa.

Ol. Ricini. Perstet.

Sept. 7th.—Rejects her food at times; looks paler; is not so lively; abdomen slightly tympanitic, although she is freely purged; back still painful.

Perstet.

21st. — Vomiting has not returned; pain in bowels and back quite gone; very lively; convalescent. There is a fulness at the lower part of the abdomen, and a flatness above the navel, a cord-like constriction being situated between them.

April, 1836. — She gradually recovered strength since last report: I have just seen her, and she is so stout and healthy that I scarcely knew her.

Remarks.—Although, to those who did not witness it, much of the interest of this case must be lost, it appears to me still to possess sufficient importance to be placed on record. It was gratifying to see how well the indications were fulfilled by the means employed. The Dover's powder allayed irritation, and at once procured rest; the mercury appeared to control the inflammatory action; the saline abated the sympathetic fever; and the gentian increased the general tone of the system. I have often combined the effervescing mixture with infusion of gentian, in fever with debility, with great advantage. This case illustrates the difficulty sometimes experienced in the diagnosis of abdominal surgery. It may be asked, was this collection of matter without or within the peritoneum? If external, did it arise from inflammation of the cellular tissue, connecting the abdominal muscles, or was it the consequence of lumbar disease? In comparing this with the case of abcess in the abdominal parietes, detailed in my Dispensary Reports, in the 14th volume of the Medical Gazette, p. 365, the two, in several respects, differ; in that, although there was a pint and a half of pus evacuated by puncture, the pain in the abdomen was very slight, and there was neither sickness, constipation, or diarrhœa. In this instance, the matter appeared to come directly from the abdomen: there was no extent of inflammation of the skin, no sinus, no collection of pus under it, or any other fistulous orifice but that from which the fluid came.

In psoas abscess, the matter sometimes burrows under the abdominal muscles, and points at a distance; it generally, however, under these circumstances, finds its way to the groin; and as there was an entire freedom from pain in the back, on limping in walking, or any signs of lumbar disease, till towards convalescence, and even then they were trivial and of short duration, I do not think the formation of matter depended upon that cause, but rather consider that it came from the interior of the peritoneum, which is confirmed by its appearance in the motions, and the matter vomited. Whether it arose from abscess of the posterior of the abdominal parietes bursting into the abdomen, as in the late Mr. Burn's case, to which I alluded on a former occasion, upon abscess of the liver, simple peritonitis, or peritonitis with mesenteric disease, I will leave others to determine, whose experience is greater than mine.

The two attacks of incessant vomiting, the one for 18, the other for 14 hours' duration, the appearance of matter once, and *only once*, in the urine evacuations, and matter vomited, are curious features in the case.

FUNCTIONS OF THE CHORDA TYMPANI

IN CONNEXION WITH THE SENSE OF TASTE.

To the Editor of the Medical Gazette.

SIR,

IN the last number of the MEDICAL GAZETTE I observe an account of some experiments performed by M. Magendie, which, in the opinion of the present writer, have a tendency to elucidate the obscurity relative to the particular nerve subservient to the function of "taste." I am induced to refer especially to these experiments, in the expectation that, by repetition and variation, they may lead to the removal of what can only be regarded as an *opprobrium physiologiæ*—our ignorance of a point so essential as the nervous connexion of one of the five senses.

On first directing my own attention to this particular subject, it occurred to me that, as we had one nerve distributed to the tongue, to which no function had been assigned, it was highly probable that observation and experiment might hereafter determine that it belonged to the *disengaged* function of taste. But as opportunities of satisfactorily pursuing such a subject do but rarely occur to individuals, and being unfurnished with experiments or cases, I have not, in my latter communications upon this matter, referred to any *hypotheses* of my own; however, by your permission, I will now again press upon the attention of physiologists the importance of investigating the office of the nerve called "chorda tympani."

The experiments of Magendie, to which I have referred, consist in his having employed galvanic currents, with a view of restoring the sense of hearing in a young Polish officer, who, from an injury, had suffered a deprivation of hearing, speech, and taste; one of the wires being applied over the *chorda tympani*. "At the very first trial," says the account in your last week's GAZETTE, "an encouraging effect was produced: the patient heard a loud buzzing noise in the head. At the third application, the *sense of taste* began to be re-established: a fact of much interest for the anatomist and physiologist, as it throws light on the origin of the chorda tympani and the functions of the fifth pair."

In my first paper upon this subject, which you did me the honour to publish in the GAZETTE of October 25, 1834, after the detail of a case in which taste remained in the absence of common feeling upon the gustatory surfaces, the following remarks occur in conclusion:—"Does not the above case decide that taste is something more than a modification of common sensation? And if so, must it not, as in the case of smell, be dependent upon a specific nervous supply? And as a variety of facts show clearly that the 'true gustatory nerve' (so called) conveys both common and specific sensibility to the tongue, must it not be a compound nerve?"

What is the function of the nerve from Meckel's ganglion called *chorda tympani*, which joins the branch that goes to the tongue from the Gasserian ganglion?—of which nerve that distinguished neurologist, Mr. Swan, observes, "it is supposed that the cord of the tympanum does not unite with the gustatory, but passes in mere contact with this; but if a preparation that has been kept in spirits be carefully examined with a magnifying glass, and at the same time an attempt be made to disunite these nerves, it will be found that the filaments of both are intermixed, and cannot be separated without violence."

And, in conclusion, what is the function of the branches from Meckel's ganglion distributed to the soft palate?

I have the honour to be, sir,
Your obedient servant,
DANIEL NOBLE.

Manchester, May 24, 1836.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Outlines of Human Pathology. By HERBERT MAYO, F.R.S., Professor of Anatomy, Physiology, and Pathological Anatomy in King's College, London. Parts I. and II.

THE greater portion of the first part of Mr. Mayo's Outlines of Pathology appeared in the pages of this journal, being taken from his lectures delivered at King's College; of that part it is therefore unnecessary for us to speak. That

which now lies before us completes the systematic outline, and comprehends the digestive organs, the absorbent system, the organs of circulation, the respiratory organs, the urino-genital system, the breast, and the uterus with its appendages.

It is scarcely to be expected that any "system" should be throughout original; the arrangement, indeed, may be so, and the same merit may belong to many of the opinions, but much of the details—the mere abstract facts, must necessarily be the result of research and compilation. Accordingly, we find constant reference to the views of the most distinguished pathologists; and the writings of the best authorities, on particular subjects, are freely quoted. Thus under the head of urine we have copious illustrations from Prout; the article on the bladder owes much of its value to the lectures of Brodie; while Hewson on the blood, and Hodgson on the arteries, afford material contributions to their several subjects. It would, however, be a great injustice to Mr. Mayo, to represent him as a mere compiler, however judicious; and accordingly we find many interesting and important pathological disquisitions of his own. Among the favourable specimens both of detail and reasoning, we may mention the chapter on the arteries, which contains a large number of instructive observations, as does that on the capillaries. As a specimen, we subjoin the account which is given of the different modes in which serous effusion may be produced.

"1. *a.* The most frequent cause of effusion of serum is retardation of the progress of the blood in the veins. The effect in this instance is perhaps entirely of a mechanical nature. The capillaries being gorged, the thinnest part of the blood transudes through their coats. When the axillary vein is compressed by enlarged and indurated lymphatic glands, serum thus escapes into the cellular membrane, or the limb becomes œdematous. When the upper vena cava is obliterated by inflammation, or obstructed by the pressure of a tumor, the face, throat, and arms, are loaded with anasarca. When the inferior cava is obstructed, the legs become anasarcous. When the cavity of the femoral vein is obliterated by inflammation, the same result takes place. When the hepatic circulation is obstructed by thickening of Glisson's capsule, abdominal dropsy, or ascites, follows. When the inferior cava is compressed near the diaphragm, by induration of the pancreas or adjacent lymphatic glands, dropsy with anasarca of the legs ensues. When there is valvular disease of the heart, allowing the stroke of the left ventricle to tell backwards and impede the propulsion of blood through the lungs, and even its passage through the right side of the heart, the lungs and the whole body are liable to become infiltrated with serum. Finally, the pressure of ovarian tumors, or of dropsy, on the iliac veins, will render the legs œdematous.

"*b.* It is probable there may be a condition of the blood—such as, for instance, extreme attenuation from repeated hæmorrhage—which may dispose it to part with serum readily, and so to give rise to œdema. A thin blood and a weak heart are capable of occasioning anasarca and dropsy.

"*c.* Chronic inflammation of the kidney, impeding the secretion of urine, may be productive of anasarca. This is one of the causes of the anasarca which follows scarlatina. Dr. Bright discovered and described the influence of this cause in determining effusion in persons who have lived intemperately; and shewed its connexion with albumen in the urine.

"*d.* General effusion of serum partakes sometimes of an inflammatory character. In young and not otherwise unhealthy persons, œdema of the legs, of the arms, and face, with ascites, will sometimes supervene after exposure to cold, being attended with slight tenderness of the swollen parts, and often with albuminous urine.

"*e.* Serous effusion is a constant attendant of ordinary inflammation, exuding equally into the interstitial cellular membrane, into the cellular tissue of organs, upon serous and mucous surfaces, and upon the skin. Its source in these instances is again probably mechanical, and attributable to the obstruction of blood in the inflamed capillaries. The softening common to all fleshy textures at the outset of acute inflammation is in part at least produced by their infiltration with serum."

On the other hand, in some of the details of what might be called *medical* pathology, Mr. Mayo appears to us to be less at home. Thus there are

some observations upon the liver, particularly with regard to jaundice, in which views are put forth as new, which we believe are pretty generally entertained by physicians.

"An ordinary attack of jaundice is characterized by yellow suffusion of the skin, impaired appetite, nausea, the urine being high-coloured, the stools white. The following is perhaps the true account of the pathology of this affection.

"The yellow colour, which pervades all the tissues and most of the secretions in jaundice, is proved to be owing to the presence of bile in them; while the white colour of the feces evidently results from the want of bile in the alimentary canal. The bile has not its proper vent, and is distributed in new places. What is the mechanism of this error loci?

"Secretion is the separation of one or more elements from the circulating blood. That separation may be owing, —either to a power in the secerning organ of extracting or drawing from the blood the secretion, *previously not existing as a separate substance in it*,—or to the secerning organ allowing the matter of the secretion, *already formed in the blood*, to strain through and find vent,—or to both these causes conjoined.

"The result obtained by M. Simon, in some experiments made upon pigeons, favours the second supposition. He found, that, when the kidneys were removed, the blood became loaded with urea. This single fact would lead us to conclude analogically, that the elements of *all the other* secretions are evolved in the blood in the course of the general circulation, and that the organs in which they are commonly thought to be formed only give them passage. The bile we may thus conclude to be formed, not in the liver, but in the mass of the circulating blood.

"Again, secerning organs are liable (to use indeed a doubtful expression) to be palsied; in other words, their secretions are liable to be *suppressed*. The best instance of this phenomenon occurs in the pathology of the kidney: suppression of urine forms a well-marked and very formidable complaint. In this instance another remarkable feature makes its appearance. The secretion being stopped, and the usual vent for the elements of the urine being obstructed, *they appear in other places*: urea has thus been found in the peritoneal serum in cases of suppression of urine.

"Reasoning from the above premises, I am disposed to believe that ordinary cases of jaundice depend upon suppression of bile—that the bile, abnormally accumulated in the blood, finds vent in the secretions of other parts, which thence become coloured yellow. Additional circumstances might be mentioned, which corroborate this view. Bile is detected in the blood of jaundiced persons; while the liver in those who have died of jaundice is generally pale, and without bile."

Now, that some of the worst forms of jaundice (those attended with disposition to coma passing into fatal apoplectic affections) are dependent upon the bile not being eliminated, or, in other words, on its being suppressed, is a doctrine which, we can vouch for it, has been taught by some of the medical lecturers of London for these ten years.

Such, in a general way, is the character of this work — such are some of the points in the manner of its execution which deserve unqualified praise—and such some of those in which it admits of improvement.

We have no doubt but that it will take its place on the same shelf with Mr. Mayo's kindred production — the Elements of Physiology; and we presume the author would find no reason to be dissatisfied with such measure of its success. To give any general *outline* of "Outlines," would be a hopeless task; but we have done enough to enable the reader to judge sufficiently whether the work is suited to his wants.

MEDICAL GAZETTE.

Saturday, May 28, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

REGISTRATION OF BIRTHS AND DEATHS.

THE question how far medical men are to consider themselves the servants of the public—doing public duties of an arduous and an onerous kind gratui-

tously—is one which it becomes every day more and more expedient to solve. We confess, that with respect to certain services (as, for example, that of attending and giving professional evidence at coroners' inquests), we never heard any thing, in the shape of a reasonable argument, against their just claim to remuneration. It is urged by some persons, who, from the fact, may be presumed to know very little about the matter, that medical men ought to perform such *slight* offices without fees and without grumbling, inasmuch as they enjoy certain immunities—such as from serving on juries, in the militia, &c.—which should be looked upon as fully an equivalent. But we can safely appeal to the better judgment of those who have thought more deeply on the subject: as we pointed last week to the reasons why we deemed medical referees entitled to fees for warranties of life-assurance, taking into account the importance of the service required to be rendered, as well as the anxious and delicate position in which it places the medical man in respect to his friend, or patient; so, with regard to inquests, we might even more strenuously insist on the right of recompense for the time occupied, and the special preparation necessary for giving good evidence—evidence so indispensable, that, without it, a conscientious coroner and his jury cannot feel themselves absolved from the obligation of their oaths.

The same is true respecting various other functions which medical practitioners are called upon to perform, in behalf of their brother members of the community, without fee or reward. The consequence is, that by a sort of prescriptive use, there is no profession more cavalierly treated. Not only has the government, or the legislature, never yet thought proper to recognize an order of medical men to be consulted on occasions demanding their special assistance for the due administration of justice, but when necessity presses, the casual attendance of very questionable persons claiming to belong to the medical profession is deemed sufficient. At the same time, in every case of trial for manslaughter by quackery, the obnoxious law is quoted, by which the regularly educated practitioner, and the presumptuous empiric, are placed exactly on the same footing. Yet medical men seldom protest against these anomalies, but tamely proceed in whatever path of apparent usefulness is opened before them.

We are sometimes tempted to be indignant, when, with such instances of neglect or ill-treatment fresh in our recollection, it is sought to impose new duties, of a public kind, on members of the profession. But a consideration of the possible utility of such duties generally interferes, and we think no more of by-gone annoyances. So we fancy it is with the great mass of practitioners: they are carried onward by their zeal and their ardour for the profession, and they willingly seize any collateral opportunity of being serviceable in the business of the state.

These remarks have been suggested by the announcement of a new plan for the registration of births, marriages, and deaths, in the working of which, medical men may be of the most essential service, and in the success of which, it must be admitted that the profession will have no small interest.

Of the great utility of exact registers of births and deaths, conducted on a large scale throughout the empire, every well-informed member of the medical profession must be convinced. The statistics of population, of disease, of epidemic and contagious disorders, and the elucidation of their causes, depend mainly on our possessing such registers, filled with the requisite data, trust-

worthily gathered, and lodged with the proper authorities regularly appointed for the purpose. Such an arrangement as would effectually secure these advantages has long been a desideratum, but is, we think, likely to be supplied ere long, through the active zeal and intelligence engaged on the project both in and out of parliament.

About two years ago, Mr. W. Brougham, brother of the late Lord Chancellor, prepared a registration bill which received general approbation, and nearly passed the House of Commons; but that measure has since been abandoned as wholly impracticable. Lord John Russell's bill has been substituted in its stead,—in many respects perhaps superior to its predecessor, but still greatly clogged, and promising to be very cumbrous in its mode of operation. Perhaps, too, in its very origin it may be deemed faulty: for it was got up with a view principally to relieve some grievances of the Dissenters, and we believe it is not intended to apply to the wants of either Ireland or Scotland; whereas such a measure should rather have been contemplated as a great, and broad, and highly interesting question of legislation, fraught with importance to every individual in the British empire.

A third plan has been suggested, by a gentleman, not in parliament, who appears to be well acquainted with all the intricacies of the subject, and has favoured the public with his views. In certain "Observations on Lord J. Russell's Bill," the author, Mr. James Yates, has given a very interesting account of what we conceive to be a very superior arrangement, in many respects, both as regards its simplicity and feasibility. We shall take leave to enter a little into detail with reference to Mr. Yates's plan.

As to its immediate machinery, it is to be observed, that in all the discussions on this point, it has been agreed, that instead of raising a wholly independent establishment for registration, it were better to attach the system to some existing institution. Mr. W. Brougham proposed to combine it with the business of collecting the assessed taxes, and Lord J. Russell with that of administering the poor laws. Mr. Yates, however, thinks that the Post-Office affords the best facilities, not only as an institution universally known, but the one through which, at all events, the work of registration must chiefly be conducted.

Certain forms or schedules are proposed by Mr. Yates, as those which he thinks most available for the purposes of registration; three of them, corresponding to each act of birth, marriage, or death, are required—one to be held by the party chiefly concerned, or his nearest relation, the second by the local post-office, and the third to be deposited in the metropolitan establishment. We have no objection whatever to these schedules—which, indeed, we consider as eminently simple, and suited for the purpose intended; but, perhaps, an extract from what Mr. Yates says respecting the quantity of them necessary for registration, will give a good idea of the amount of business in the registering department likely to be done throughout the country when the measure comes into action:—"To form an idea," he says, "of the quantity of these forms that would be used, I may mention that, on the supposition of a birth for every 36 persons in a population of 24,300,000, the number of copies of the form in Schedule A [for the births] required for one year would be 675,000. In like manner, allowing a death for every 50 persons, and a marriage for every 128, the number of Schedule B [for the deaths] required for one year would be 486,000, and the number of

Schedule C [for the marriages] 189,000. Thus the total amount of certificates of the three classes would be 1,350,000. From these numbers, which must be regarded only as approximations, it results, the average length of each form being taken at two feet, that the paper required for the process would extend to 500 miles in length!"

The principal source of revenue for liquidating the expenses of this prodigious registration is to be found in the fee of a shilling, payable on occasion of entering each birth and death, and something more for each marriage. Fines also are to be levied in case of procrastination; for instance, if a birth be not registered within a fortnight, a shilling additional is to be paid for every week elapsed subsequent to that appointed period.

A point of great importance, in respect of medical statistics, is secured in Mr. Yates's form of registering the deaths. The *cause* of death, it is intended, shall be regularly entered in the schedule, and there is space left for *remarks*, to be filled up by the proper witness,—namely, whenever it is at all practicable, by the medical attendant. This is a provision which is completely overlooked in Lord J. Russell's bill.

The whole system proposed by the author whose plan is before us, goes upon this principle—that man is not a mere passive material, but "a moral agent, having from his birth certain rights, certain claims to protection, certain relations to those around him, which may become the sources of many advantages. The French law, being of modern growth, and having been formed with an enlightened regard to general principles of jurisprudence, distinctly admits the latter view. It supposes every man to have an *état civil;* that as soon as he comes into the world he is to be considered not merely as one of the ingredients, of which the vast mass of the population is composed, but as a distinct person, occupying his own place in society, and entitled, according as his place may be, to consideration, protection, employment, and advancement."

Mr. Yates, however, judiciously combines both views: "on the one hand, to provide for the security of every individual in the possession and advancement of his rights, and to require the aid and co-operation of himself and his nearest connexions in making this provision; and, on the other hand, to obtain for the whole mass of society advantages, in which they have a common concern, and to impose upon the whole mass such united efforts as are necessary to obtain them."

Of the curious shifts to which persons are frequently put in order to make out their title to certain disputed rights, we meet with instances almost daily. The following is given by the author, as an example of the difficulties which often arise in attempting to prove pedigrees in the present state of the law. In the case of *Slaney* v. *Wade*, which occurred but a short time since in the Court of Chancery, it was necessary to go back more than two hundred years, and to prove births and deaths through several branches of a numerous progeny from that time to the present. With reference to one branch, the plaintiff was fortunate enough to obtain the evidence of an old man, who formerly held some parochial office at Shiffnall, in Shropshire, and who had once copied, in pencil, an inscription on a mural tablet in the church. This inscription had afterwards been traced over in ink by the clergyman, and preserved with one or two other documents of the same kind. In making some repairs, the tablet was plastered over; and consequently the copy (probably made in a

very careless manner) was taken as the best evidence that could be procured.

It is needless, we imagine, to pursue this subject further. The advantages of being possessed of a good system of registration must be obvious to every thinking man in the community; to none more so than to the members of our profession, who are well aware of the benefits which would be thence derived to medical science. How far it may be practicable to substitute Mr. Yates's plan for the more cumbrous and expensive one of Lord John Russell, we know not; but this we know, that if simplicity of design, economy of resources, and the absence of all violent change in the existing order of things, can recommend one project in preference to another, that of which we have given the reader some account in the present brief notice must supersede all that have hitherto been proposed to the public. We have been the more desirous of giving publicity to the principal details of the plan, inasmuch as we are convinced that its adoption will materially conduce to the advancement of science, and that, with such an object in view, none can be more interested in its success, as none have more power to patronize it in society, than the members of the medical profession.

INSULT TO THE MEDICAL OFFICERS OF THE GRENADIER GUARDS.

The indignity offered some time back to the Surgeons of the Navy, in prohibiting them from going to Court, must be fresh in the recollection of our readers. We have now to record another of those petty insults which are occasionally offered to our profession, by those who seem to hold that the rank of different members of society is to be estimated inversely as their intelligence and usefulness.

Some balls have recently been given at St. James's, on which occasions the attendance of the officers of the Guards was commanded by her Majesty. It was arranged that half of the officers of each regiment should attend in succession; and, accordingly, those of the Coldstream, of the Life Guards (and, we believe, of the 3d Regiment), including the medical officers, had the honour of being present. But with regard to the Grenadier Guards the arrangement was different, the commanding officer having directed the attendance of the other officers, *to the exclusion of the surgeons;* thereby clearly intimating that, in his estimation, the medical men were not in a situation to entitle them to the same honour.

We recommend to the parties who were made the subjects of this invidious distinction to appeal to his Grace the Duke of Wellington, as Colonel of the regiment, who, we feel satisfied, would not lend his sanction to such a proceeding; or, failing this, humbly to apply to his Majesty, to know the meaning of the term "gentleman," by which each of them is designated in his commission, and which bears the Royal signature.

IRISH MEDICAL ESTABLISHMENTS.

In that part of Dr. Borrett's report on the Medical Institutions of Ireland, given in the present number, some statements will be found which, we venture to say, will astonish the reader not a little. We call attention particularly to the very extraordinary system of misrule which appears to have been pursued for several years past, at the North Charitable Infirmary, Cork. The mockery of a board of trustees, or of managers, at that place, is at once one of the most ludicrous and offensive displays of the mode in which *charity* is dispensed in

some parts of Ireland, that, we think, we have ever heard of; though we fear that several examples of a similar kind might, without difficulty, be pointed out in the same ill-regulated part of the empire. The account given of the Cork Lunatic Asylum cannot fail to be read with interest: nor shall we forbear, in this passing notice of his paper, to say how heartily we concur with Dr. Borrett in his remarks on the unwise and unjust system of exclusion, maintained in the appointments to the County Infirmaries, in favour of the *Irish* Colleges of Physicians and Surgeons. There is not a more barefaced monopoly existing: yet the Colleges in question have been labouring to *protect their rights* in the apprehended *reform* of the medical corporations!

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, May 24, 1836.

H. Earle, Esq., F.R.S., President, in the Chair.

Sir Benjamin Brodie's elaborate paper on *Injuries of the Spinal Marrow*, was brought to a conclusion this evening. We hope to give an account of it next week. The reading of the paper was followed by a discussion, in which Sir Benjamin, Mr. Earle, and several of the Fellows, took a part.

The next meeting of the Society (June 7)—an extraordinary one, for despatch of business—will be occupied with abstracts of several papers, which cannot be read in full in consequence of the time of the Society being limited, the season now coming to a close; and on the same evening several eminent persons, including Tiedemann, Tommasini, and others belonging to various Universities throughout Europe, will be balloted for, as honorary Fellows. The business of the Society on that evening will commence at eight o'clock.

ROYAL INSTITUTION.

Friday, May 13, 1836.

Dr. Lardner on the Economical Production of Steam.

The nominal subject on which Dr. Lardner gave the lecture of this evening, was the practicability of steam communication with India; but at least three-fourths of what he delivered related to the economy of water and fuel in preparing steam. Of the perfect practicability of reaching India expeditiously, by the route of the isthmus of Suez, and having one or two supplies of fuel at certain localities on the way, nobody can entertain a reasonable doubt: Dr. Lardner also pointed out a course by which a more expeditious communication between this country and the United States of America might be effected, laying down railways in Ireland in the first instance, putting to sea in the Bay of Galway, and touching at Newfoundland as an intermediate and convenient point in the voyage to New York. Of the various facts stated by the lecturer in the earlier portion of his discourse, we may notice one which will give a good idea of the manner in which the production of steam is limited in attempting to accomplish long voyages. The quantity of fuel consumed by the boiler of a steam vessel is calculated at 10lbs. per hour for each horse power: therefore a ton of coals is burned every hour, when there are two engines at work, each 100 horse power. It follows that, supposing the speed of the vessel to be seven miles an hour, 300 tons of coals, at the very least, would be required for the completion of a voyage of 2000 miles: and probably it would not be safe to venture on such a voyage without having on board 400 tons, in order to meet contingencies and accidents. How much such a stowage of coal must interfere with the speed and usefulness of a vessel intended for despatch, is obvious. It is rather a curious fact that the boilers of engines on land are found to consume one half more fuel than marine boilers: in other words, that 15lbs. per hour for each horse power is their calculated consumption. The probable reason of this Dr. Lardner did not explain; he gave it merely as a fact admitted by the best informed practical men.

Friday, May 20, 1836.

Professor Mayo on Sensation, and some peculiarities of Vision.

The large and mixed auditory which heard this lecture seemed much interested by the facts and illustrations brought be-

fore them; but as a complete abstract of the lecture itself will be found in another part of the present number, we shall not here, even if we had the requisite space, offer any analysis of it.

GREATEST ASCENTS IN THE ATMOSPHERE.

M. Boussingault, in company with Colonel Hall, on the 15th of December, 1831, ascended Chimborazo, to the height of 6,606 metres (19,699 feet), the greatest elevation which has yet been attained on land, Humboldt having been able to reach as high only as 19,400 feet. M. Gay Lussac, in a balloon, rose to 22,900 feet at Paris. The barometer carried by Boussingault fell to 13 inches 8 lines. The temperature in the shade was 7·8 C. (45.60 F.) This chemist thinks it possible to live in rarefied air. Thus, at a height almost equal to that of Mont Blanc, where Saussure had scarce strength to consult his instruments, young women may be seen in South America dancing during the whole night. The celebrated battle of Pinchinca during the war of independence, was fought at a height little inferior to that of Mount Rose. The guides who accompanied Saussure, assured him that they had seen the stars in broad day. Boussingault never witnessed them, although he reach d a much greater altitude.—*Journ. de Chim. Médic.*

PRIZES OFFERED IN PARIS.

The Editors of the *Annales d'Hygiène et de Médecine légale* propose to give two prizes, of 300 fr. each, one for the best essay on some subject relating to public *hygiène*, the other for a similar production on a subject of legal medicine. The papers may be written in Latin, French, German, English, Italian, or Spanish; and must be forwarded before the 1st of Nov. 1836, to M. J. B. Baillière, the publisher, of Paris. The name of the author to be inclosed in a separate sealed billet.

NEW MEDICAL WORKS.

Treatise on the Preservation of the Teeth and Gums. By W. Thornton, M.R.C.S., Dental Surgeon. 8vo. pp. 51.

Observations on the Medical and Surgical Agency of the Air-pump. Read before the British Association in 1835. By Sir James Murray, M.D. &c. 8vo. pp. 63.

Archiv für Anatomie, Physiologie, und Wissenschaftliche Medicin. Herausgegeben von Dr. Johan. Müller. Jahrgang, 1836, Heft 1. Berlin.

LITERARY ANNOUNCEMENT.

The Proofs of Infanticide considered: comprising a Summary of the present state of medico-legal knowledge on the subject of Child Murder. By Wm. Cummin, M.D., Lecturer at the Aldersgate School of Medicine..—(Nearly ready.)

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

May 26, 1836.

William Henry Wood, Ash Hall, Glamorganshire.
Charles James Cox, London.
John Henry Roberts.
Walter Moore.
Samuel Potter, Liverpool.
Richard Wise Norris, Liverpool.
Robert Wallis, South Shields, Durham.
George Arnott, Edinburgh.
John Selkirk, Bury, Lancashire.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *May* 24, 1836.

Age and Debility	32	Inflammation	22
Apoplexy	5	Bowels & Stomach	2
Asthma	12	Brain	2
Cancer	3	Lungs and Pleura	5
Consumption	45	Insanity	1
Convulsions	24	Liver, diseased	1
Croup	1	Measles	3
Dentition or Teething	4	Miscarriage	1
Dropsy	8	Mortification	5
Dropsy on the Brain	11	Paralysis	1
Epilepsy	1	Rheumatism	1
Erysipelas	1	Small-pox	6
Fever	9	Sore Throat and Quinsey	1
Fever, Scarlet	2	Spasms	3
Gout	1	Unknown Causes	1
Heart, diseased	5		
Hooping Cough	7	Casualties	13

Decrease of Burials, as compared with the preceding week . . 146

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich*.

May, 1836.	Thermometer.		Barometer.	
Thursday . 19	from 44	to 63	30 23	to 30·13
Friday . . 20	34	72	30·06	29 94
Saturday . 21	43	60	29 91	29·95
Sunday . . 22	32	60	29 95	29·86
Monday . . 23	37	63	29·79	29·89
Tuesday . . 24	40	62	29 99	29·12
Wednesday 25	34	61	30·14	30·15

Prevailing winds, N. by E., and E. by N.

Generally clear; a few drops of rain on the mornings of the 21st, 23d, and 24th.

Rain fallen, ·05 of an inch.

Charles Henry Adams.

Notice.—"A Medical Pupil."—Certainly; the law applies to the present teachers.

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, JUNE 4, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XXXVI.

I propose in this lecture to examine *Iron*, and its *pharmacological compounds.*

IRON.

History and synonymes.—This metal (called by the alchymists *Mars*) was known in the most ancient times, probably more than 3000 years before Christ. It was employed medicinally at a very early period,—namely, above 3200 years ago. Indeed, it appears to have been the first mineral used internally; and a curious anecdote is given of its introduction into medicine. Melampus (a shepherd supposed to possess supernatural powers) being applied to by Iphicles, son of Phylacus, for a remedy against impotence, slaughtered two bulls, the intestines of which he cut to pieces, in order to attract birds to an augury. Among the animals which came to the feast was a vulture, from whom Melampus pretended to learn that his patient, when a boy, had stuck a knife wet with the blood of some rams into a consecrated chestnut tree, and that the bark had subsequently enveloped it. The vulture also indicated the remedy—namely, to procure the knife, scrape off the rust, and drink it in wine for the space of ten days, by which time Iphicles would be lusty, and capable of getting children. The advice thus given by Melampus is said to have been followed by the young prince with the most perfect success!

Native state.—This metal is found in both kingdoms of nature. Thus the magnet will detect it in the ashes of most vegetable substances; for example, the roots of *helleborus niger*, *daucus carota*, and *polygala senega;* the flowers of the *papaver rhœas;* and the seeds of *sinapis.* In the blood and some other parts of animals it is also found. In the inorganic kingdom it is met with in the *metallic* state, in the form of *oxide*, *sulphuret*, *chloride*, and *oxy-salts.*

Extraction.—In this country *clay iron ore* (essentially a *proto-carbonate* of iron) is roasted, to expel carbonic acid, water, sulphur, and other volatile matters; and then smelted with a flux and coke, by which cast iron *(ferrum fusum)* is obtained. This, however, contains carbon, oxygen, silica (or silicon), and often sulphur and phosphorus. To separate these it undergoes the processes of refining, puddling, and welding, to form wrought iron *(ferrum cusum)*, which is the purest kind of commercial iron.

Properties.—Most of the physical properties of iron are too well known to require description. The primitive form of the crystals of meteoric iron is the regular octahedron: the tenacity and ductility of this metal are great, but the malleability is not at all proportionate. When pure, its colour is said by Berzelius to be white, like silver. One property deserves notice, namely, that by rolling or drawing into wires, the specific gravity of iron diminishes. Its atomic weight is 28, and its symbol Fe.

Characteristics.—Iron readily dissolves in dilute sulphuric acid, with the evolution of hydrogen gas. The solution contains the protosulphate of iron, and produces on the addition of caustic potash or soda, a greenish white precipitate, (the hydrated protoxide); this precipitate, by exposure to the air, attracts oxygen, and is converted into the red or peroxide. By boiling the solution with a little nitric acid, we obtain a persulphate of iron, recognized

by ferrocyanuret of potassium causing a blue precipitate; sulphocyanic or meconic acid, a red colour; gallic acid, or infusion of galls, a bluish black; and succinate, or benzoate of ammonia, a yellowish precipitate.

Physiological effects. — Iron is probably inert as long as it retains its metallic form, but it readily oxidizes in the alimentary canal, and thereby acquires medicinal power. As acids promote this chemical change, acid wines and fruits assist in rendering the metal active, while alkalies and their carbonates have an opposite effect. The oxidizement of the iron is attended with the evolution of hydrogen gas, which gives rise to unpleasant eructations. If sulphur be taken along with the iron, sulphuretted hydrogen is developed. Like the ferruginous preparations generally, the internal employment of iron causes blackening of the stools. The nature of the effects produced by the oxide of iron formed in the alimentary canal, will be best examined hereafter under the head of ferruginous preparations. I may, however, remark here, that it is one of the few metals which, by oxidizement, is not rendered more or less poisonous.

Uses.—Iron filings have been used in those cases where the chalybeate preparations generally have been administered, and which I shall presently notice. In some instances, however, the efficacy of the iron depends on its being in the uncombined state. Thus, when used as an antidote to poisoning by the salts of copper, it is necessary that the iron be in the metallic state, in order to reduce the cupreous salts. Iron filings have been regarded as anthelmintic, especially in the small thread-worm (the *oxyuris vermicularis*); they have been used also as an astringent application, to repress fœtid secretion of the feet.

Administration.—Except in poisoning by the cupreous preparations, modern practitioners very properly prefer the compounds of iron to this substance in the metallic state, considering them to be more certain and active. Sydenham, however, seems to have had a different opinion, for in speaking of the treatment of hysterical and hypochondriacal diseases, he says, "I have been fully satisfied by frequent experience, that the bare substance performs the cure sooner and more effectually than any of the common preparations of it; for busy chemists make this, as well as other excellent remedies, worse rather than better, by their perverse and over-officious diligence."

Iron filings (designated in our Pharmacopœias by the terms *ferri ramenta*, *ferri limatura*, and *ferri scobs*) are usually obtained from smiths and other workers in iron. They are separated from the filings of copper and brass by a magnet; and are given in doses of from five grains to half a drachm, in the form of powder, electuary, or pill. As a *powder*, they should be mixed with some aromatic, to enable them to be retained better on the stomach. To form them into an *electuary*, we may employ honey; and when we wish to administer them in the form of *pill*, they may be combined with some bitter extract, or with the fœtid gums. As they are usually met with in commerce more or less oxidated, part of the medicinal effect is attributable to the oxide present.

Ferruginous or Chalybeate Preparations.

Physiological effects.—To save much repetition, I purpose speaking of the ferruginous compounds collectively, since they operate in an analogous manner. The *local* effects of the sulphate and chloride of iron, are those of irritants, and these preparations accordingly rank among poisons; but they are not equal in power to the mercurial and cupreous salts. Most of the ferruginous preparations are astringent; that is, they constringe the parts with which they are in contact, and thereby diminish secretions and check sanguineous discharges. Thus, when swallowed, they repress the secretion and exhalation of the alimentary membrane, and thereby render the alvine evacuations more solid, and even occasion costiveness. The sulphate and chloride of iron are the most powerful of the ferruginous astringents. Administered in large quantities, or when the alimentary canal is in an irritable condition, all the compounds of iron are capable of exciting heat, weight and uneasiness at the præcordia, nausea and even vomiting, and sometimes purging.

The constitutional or *remote* effects of the chalybeates are principally observed in the vascular and muscular systems, and are best seen in that state of the system denominated *anæmia*, or more properly *hypæmia*, in which both the quantity and quality of the blood appear defective. You have a good illustration of this state in chlorotic patients. The skin appears pale and almost exsanguineous, the cellular tissue is œdematous, and, after death, the larger vessels as well as the capillaries are found to be imperfectly supplied with blood. Patients with this condition of system suffer from great feebleness, loss of appetite, and palpitation of the heart; and in females the catamenial secretion is frequently, but not invariably, defective. That the want of uterine action is not the cause, but rather the effect of this condition of system, seems tolerably clear from the circumstance of the same constitutional symptoms of anæmia some-

times occurring with a perfect regularity of the uterine functions; moreover, we occasionally meet with anæmia in men. It is sometimes the consequence of hæmorrhages—at other times it occurs spontaneously, and without any known cause.

If in this condition of system iron be administered, the appetite increases, digestion is promoted, the pulse becomes fuller and stronger, the skin assumes its natural tint, the lips and cheeks become more florid, the temperature of the body is increased, the œdema disappears, and the muscular strength is greatly augmented. The alvine evacuations assume a black colour, as they always do under the use of the ferruginous preparations, owing to the formation of what might perhaps be termed *ferrate of iron*—that is, a mixture, or perhaps rather a compound of the per- and protoxide of iron,—and which, by some chemists, is regarded as a third oxide of iron, under the name of the black or deutoxide. After continuing the use of the iron for a few weeks, we frequently find excitement of the vascular system (particularly of the brain); thus we have throbbing of the cerebral vessels, and sometimes pain in the head; and by the long-continued use of these preparations an inflammatory condition of the system follows, with a tendency to hæmorrhage. Mr. Carmichael considers the *sanguine* temperament (marked by a high complexion, celerity of thought, remarkable irritability of fibre, and a quick pulse) as depending on an excess of iron in the system; whereas he regards the reverse of this (namely, the *leucophlegmatic*, or what I have termed, in a previous part of the course, the *relaxed*, temperament, and which is characterized by a pale bloated countenance, dull eyes, mind heavy and slow in receiving and forming ideas, little irritability of fibre, and pulse small and feeble) as depending on a deficiency of iron.

Whether these notions are or are not correct, is of little consequence to my present object. I wish to point out the two conditions of the system,—in the one of which iron is prejudicial, in the other serviceable,—and I leave others to form hypotheses on these facts.

When by the use of iron the state of the general system improves, the secretions assume their natural condition, and thus at one time we observe this metal promoting the uterine discharge; at another, checking it, according as chlorosis or menorrhagia had been previously present; we cannot, therefore, regard the preparations of this metal as having any direct emmenagogue effect, as some have supposed.

It is said that in animals to whom iron has been given for a considerable time, the spleen has been found smaller, harder, and denser, an effect which is supposed to be owing to the increased contractile power experienced by the veins of the abdomen. The liver even is said to be influenced in a somewhat similar, but slighter manner.

In the condition of system (*anæmia*) we have been examining, I have mentioned that the blood is observed to be deficient in quantity, and to be altered in its quality. Now some refer all the other symptoms to this abnormal state of the circulating fluid, and ascribe the beneficial influence of iron to its improving the quality of this liquid. It is certain that frequently under the use of the preparations of this metal the blood acquires a more scarlet colour, owing, as it has been fancied, to an increase in the quantity of its colouring particles; and it is said that the crassamentum becomes firmer and more solid, and even increased in quantity. This alteration of the physical and chemical properties of the blood is supposed to render it more stimulating, and thus the different organs receiving a fluid of a more healthy character, resume their normal condition, and perform their functions in a proper manner. In favour of this mode of explaining the therapeutic influence of iron, I may remark that it appears indisputably established, that, taken as a medicine, this metal does become absorbed, for Tiedemann and Gmelin have detected it in the serum of the blood of the portal and mesenteric veins of horses and dogs, to whom they administered either the sulphate or chloride; occasionally, too, the urine has been found to contain it. Moreover, Menghini asserts the quantity of iron in the blood of dogs is increased by feeding them on substances mixed with this metal. Furthermore, it is not to be forgotten, that iron exists in no inconsiderable quantity in healthy blood, and is supposed to contribute to its colour, and probably to its stimulant properties; so that it is not unlikely any variation in the quantity of this metal would be attended with an alteration in the action of all the organs.

Now, herein consists one remarkable distinction between iron and most other metals: to act beneficially on the system, it would seem to require digestion and assimilation, whereas the others become neither digested nor assimilated; they get into the blood, it is true, but they then act as poisons, and gradually disorder the functions, and undermine the general health. However, it appears that iron is a substance not easily digested, for it remains in the stomach and intestines many days after it is swallowed; in order,

therefore, that the ferruginous preparations should have much effect on the general system, it is necessary that they be employed for some considerable time. Another circumstance connected with the operation of iron is likewise deserving of notice,—namely, that it has no primary or specific effect on the nervous system, as arsenic, mercury, copper, zinc, bismuth, silver, and many other metals have. You must not, however, imagine from these remarks, that the preparations of iron never operate injuriously. On the contrary, we see them sometimes acting as local irritants on the alimentary canal, as already noticed: and by the use of them in too large quantities, or for too long a period of time, they bring on a hypersthenic or phlogistic diathesis.

Uses.—By a careful attention to the known physiological effects of iron, the indications and contra-indications for its employment may be in great part learned. Thus you will readily see the impropriety of administering it where there is irritation or inflammation of the alimentary canal, in plethoric habits, and in persons disposed to inflammatory diseases, or to apoplexy. On the contrary, in all cases characterized by feebleness and inertia of the different organs of the body, by a soft lax condition of the solids, and by a leucophlegmatic state of the system—where the patient appears to be suffering from a state of general anæmia, already described—the preparations of iron are admissible. It is hardly within the scope of my present object to instance particular diseases where this metal may be used, but rather to point out those conditions of system which affect the employment of iron in diseases generally. I may notice a few cases by way of illustration.

As an *external* or *local* agent, we rarely employ the preparations of iron, since we have other more efficacious and powerful remedies. Occasionally, however, they have been used as astringents, styptics, and caustics. Thus solutions of the sulphate and chloride have been used in the form of injection, in discharges from the urethra and vagina: and the tincture of the muriate is now and then applied as a styptic, or to repress the growth of spongy granulations.

The ferruginous preparations are principally resorted to, with the view of affecting the general system. Thus *affections of the sexual organs* are frequently treated with advantage by iron. It is hardly necessary to stop here to inquire whether iron has any specific influence over these parts, since those who deny this influence (and you will see, from the tenor of my remarks, that I am among this number) equally admit the beneficial operation of this agent in various disordered conditions of these organs. Thus chlorosis, amenorrhœa, dysmenorrhœa, and menorrhagia, are at times benefited by chalybeates; but, on the other hand, they are occasionally unaffected by them, and in some cases even may be made worse. For example, when chlorosis depends on, or at least is accompanied by, that condition of the system before described under the name of anæmia, you will very frequently find ferruginous preparations useful; but if it occur in patients of a full habit, or if it arise from inflammation of some organ (as the lungs, stomach, or bowels), chalybeates will do harm. I have already given you an anecdote illustrative of the early use made of iron as a remedy for impotence; and I may add, that in those cases connected with, or arising from, general feebleness, it may be now and then useful; but in nine out of ten cases which we are called on to treat, this condition arises from indulgence in bad habits, which no medicine can affect. Sometimes iron is resorted to in sterility (though Dioscorides says the rust of iron hinders women from conceiving), but the conditions under which it is likely to be useful are precisely those before mentioned for other diseases. In discharges from the genital organs, as gleet and leucorrhœa, the internal employment of the tincture of the muriate of iron, sometimes conjoined with the tincture of cantharides, has been found useful.

In some *periodical diseases*—namely, ague, asthma, and tic douloureux—the ferruginous preparations have gained considerable repute. In the first of these diseases, (that is, ague), the sulphate has been used by Marc and others, the subcarbonate by Buchwald, the ammoniacal muriate by Hartmann; but it has been almost wholly superseded, of late years, by the sulphate of quinine and by arsenic. In asthma, Dr. Bree (who was himself a sufferer from the disease) regards iron as preferable to all other remedies. However, the experience of others has not confirmed his favourable opinion of it. The preparation called subcarbonate of iron has latterly been extensively employed in tic douloureux, and with variable success; in some cases acting in a most extraordinarily beneficial manner, in others being of no avail.

In *diseases of the spleen and liver*, the ferruginous compounds are occasionally found useful. I have already alluded to the influence which they are supposed to possess over these organs; a supposition the more probable from the occasional remarkable effects produced by them in diseases of these organs. "I regard iron as

a *specific*," says Cruveilhier, "in *hypertrophy of the spleen*, or *chronic splenitis*; whether primitive, or consecutive to intermittent fevers." After noticing the symptoms attending this condition (such as paleness of the lips, &c. great lassitude, abdominal and cephalic pulsations, brought on by the slightest exertion; pain at the left side, disordered state of the digestive organs, accelerated pulse, and heart easily excited), he goes on to remark, "By the aid of iron I have obtained the complete resolution of enlargements of the spleen, which have occupied half, or even two thirds, of the abdomen." In hypertrophy of the liver, iron has not been equally serviceable.

Some years ago the preparations of iron were strongly recommended in *cancer* by Mr. Carmichael. The grounds on which he was led to the use of them were, the probability that cancer had an independent life,—in other words, that it was a kind of parasite, as some preceding writers, more particularly Dr. Adams, had presumed; and secondly, the efficacy of iron in destroying intestinal worms, which led him to hope that it would be equally destructive to other parasites. With these views he employed (externally and internally) various ferruginous compounds—namely, the ferretartrate of potash, the subcarbonate of iron, and the phosphates. Whatever hopes may have at one time been entertained of these remedies as curative agents, in this most intractable disease, they are now completely destroyed. That these medicines are occasionally useful as palliatives, may perhaps be admitted; but they have no curative powers. Indeed this might have been suspected, from the hypothetical grounds on which they were introduced into use. The proofs of the parasitical nature of cancer must be much stronger than any yet offered, ere we can admit this hypothesis. Moreover, the preparations of iron, though useful, are not so "very effectual" in worms as Mr. Carmichael's remarks would lead you to imagine.

In certain affections of the digestive organs, the preparations of iron are occasionally used with benefit,—as in some forms of dyspepsia, but only in the conditions of system already noticed. In some *affections of the nervous system*, which occur in weak debilitated subjects, it is also used; for example, in epilepsy, chorea, hysteria, and the shaking palsy produced by the vapour of mercury.

I might enumerate a considerable number of diseases, besides those already mentioned, in which chalybeates are occasionally beneficial; but the general principles regulating their use will be readily comprehended from the remarks which have been made; and I have only to add, that in all diseases attended by debility, and marked by atony and inertia of organs, more especially in those indicating a disordered state of the hæmatose functions, the preparations of iron will be in most instances more or less serviceable. Furthermore, I may enumerate scrofula, rickets, dropsy, and gout, as diseases in which iron has been at times used with advantage.

Peroxide of Iron.—Subcarbonate of Iron of the Shops.

History and synonymes.—The powder sold in the shops by the name of *subcarbonate of iron* (sometimes termed *precipitated subcarbonate*, or merely *carbonate*) is, really, *hydrated peroxide of iron*, with a small portion of *protocarbonate*. Now, Geber was acquainted with peroxide, and probably it was known before his time, though of this we have no proof.

Native state.—Protocarbonate of iron is met with native, both massive and crystallized, and is termed *spathose iron*, *clay iron ore*, &c. The mineral called *brown spar* consists of the protocarbonate and peroxide of iron. Many mineral waters contain protocarbonate of iron, but when they come in contact with the air, carbonic acid is evolved, while the protoxide attracts oxygen, and is deposited under the form of red peroxide.

Preparation.—It is prepared by mixing solutions of the protosulphate of iron, and carbonate of soda (called in the Pharmacopœia subcarbonate). Double decomposition takes place, a greenish hydrated protocarbonate of iron precipitates, while sulphate of soda remains in solution.

Re-agents.	Results.
$\dot{Fe}\ \dddot{S}$	$\dot{Na}\ \dddot{S}$
$\dot{Na}\ \ddot{C}$	$\dot{Fe}\ \ddot{C}$

In the act of drying, the green protocarbonate attracts oxygen from the air, gives out carbonic acid, and becomes the red peroxide of iron. Even when prepared with the utmost care, the greater part of the protocarbonate undergoes this change.

Composition.—Protocarbonate of iron is composed of—

1 atom protoxide of iron	36
1 atom carbonic acid	22
	58

Its formula being $\dot{Fe}\,\ddot{C}$

And peroxide of iron consists of—

1 atom iron	28
$1\frac{1}{2}$ atoms oxygen	12
	40

Its formula is $\underline{\dddot{Fe}}$

Now the subcarbonate of iron of the

Pharmacopœia is a mixture of these compounds; the proportions, according to Mr. Phillips, being as follows:—

	As met with in the shops.	Prepared with the greatest care.
Protocarbonate iron........	4	40
Peroxide iron	96	60
	100	100

Properties. — The subcarbonate of the shops is a red, tasteless, odourless powder, insoluble in water, but dissolving in the mineral acids with the evolution of carbonic acid (from the contained protocarbonate).

The *physiological effects and uses* of the subcarbonate of iron are similar to those of the ferruginous preparations in general; and, therefore, do not need further notice, except perhaps in reference to *neuralgia*, or *tic douloureux*, in which this compound was first recommended by Mr. Benjamin Hutchinson; and of its occasional beneficial effects there can be no question. We cannot explain its *modus operandi*, and, therefore, for the present, must content ourselves with the valuable fact of its occasional remedial powers. I say *occasional*, because you will meet with many cases in which no benefit whatever is gained by its use; nay, in one case where I employed it, the patient fancied it made her worse. No one, however, would omit trying it in this disease. Mr. Carmichael, as already mentioned, has recommended it as a remedy for cancerous diseases; but the fact of its having fallen into almost general disuse in this complaint, is a sufficient evidence of its inefficacy. As an antidote for arsenic, it has, I think, little claim to notice. Its agency can be mechanical only, as I have observed in speaking of the antidotes for arsenic.

Administration.—The usual dose of this preparation, as a tonic and emmenagogue, is from ten grains to half a drachm, given with some aromatic, to enable it to sit more easily on the stomach. In tic douloureux, however, much larger doses are given,—from half a drachm to two or three drachms.

Protocarbonate of Iron—Compound Iron Mixture.

History.—This is a professed imitation of Dr. Griffiths' antihectic or tonic mixture. Hence it is frequently termed "*Griffiths' mixture.*"

Preparation.—It is prepared by adding protosulphate of iron to a solution of the carbonate of potash (called, in the shops, the subcarbonate) in rose-water; to which powdered myrrh, spirit of nutmeg, and sugar, have been added. Immediately the mixture is made, it is to be put into a stoppered bottle, to prevent it undergoing decomposition.

The *theory* of the process is similar to that mentioned for the last preparation. By the mutual action of the ferruginous sulphate and the alkaline carbonate, we obtain sulphate of potash in solution, and protocarbonate of iron precipitated. To prevent this latter salt attracting oxygen from the air, it is to be placed in a stoppered bottle; otherwise it would become converted into the peroxide. As more subcarbonate of potash is ordered in the Pharmacopœia than undergoes the above change, the excess acts on the myrrh and forms a saponaceous compound, which assists in suspending the protocarbonate in the liquid.

Properties.—When first made, this mixture has a greenish colour, owing to the protocarbonate of iron; but by exposure to the air it becomes reddish, in consequence of the formation of peroxide of iron and the escape of carbonic acid: hence we should only prepare this mixture when wanted for use.

Physiological effects.—It is, according to the experience of myself and others, one of the most efficacious forms for administering iron, and which is supposed to be owing to its being the most soluble, and, therefore, the most digestible, ferruginous preparation. The myrrh contributes to its tonic operation.

Uses.—It is admissible in any of the cases in which the ferruginous preparations generally are employed.

Administration.—It is given in doses of from one to two ounces, repeated three or four times a-day.

Protocarbonate of Iron—Pilulæ Ferri Compositæ.

The compound contained in the London Pharmacopœia, under the above title, is analogous, in its composition and effects, to the compound iron mixture just described. Thus it is composed of myrrh, subcarbonate of soda (not potash, on account of its deliquescence), sulphate of iron, and sugar: by the mutual action which the second and third of these ingredients exert on each other, we get sulphate of soda and protocarbonate of iron formed. These pills, like the mixture, should only be made when wanted. Twenty grains contain about one grain of protoxide, or one grain and seven-tenths of the protocarbonate of iron, and are equal to an ounce and a half of the mixture; and, therefore, the dose of the pills will be from ten to twenty grains.

Protosulphate of Iron.

History and synonymes. — This salt is mentioned by Pliny under the names of *misy, sory,* and *calchantum.* It has been known by various other appellations, such as *sal martis, green vitriol, copperas, vitriolated iron,* &c.

Native state.—There are two sulphates of the peroxide found native, as also a double salt of the protosulphate of iron and sulphate of alumina. These are described in Dr. T. Thomson's work on Mineralogy.

Preparation. — Protosulphate of iron is prepared by dissolving clean unoxidized iron in dilute sulphuric acid. The solution is to be filtered, evaporated, and crystallized.

In this process a portion of water is decomposed, the hydrogen of which escapes, while the oxygen unites with the iron to form protoxide of iron, which with sulphuric acid, yields the protosulphate.

Re-agents.	Results.
Fe	H
$\dot{H}$	$\dot{Fe}\,\dddot{S}$
$\dddot{S}$	

The *green vitriol,* or *copperas* of commerce, is usually obtained by exposing heaps of moistened iron pyrites (bi-sulphuret of iron) during some months to the air. The pyrites gradually attracts oxygen, and is converted into sulphate of iron, which dissolves in the water. The solution thus procured is usually acid, and hence old iron is added to saturate it. It is then concentrated in leaden boilers, and run off into large vessels to crystallize.

Properties.—The primary form of the crystals of this salt is the oblique rhombic prism: their colour is blueish-green, but by exposure to the air they attract oxygen, and become yellowish. Its taste is styptic, or inky.

Characteristics.—That it contains sulphuric acid is readily proved by the barytic salts, as mentioned when speaking of this acid. If it be a pure protosulphate, it yields a white precipitate on the addition of the ferrocyanuret of potassium, but which becomes blue by exposure to the air. Usually we obtain a blueish precipitate on the addition of the ferrocyanuret, owing to the presence of some peroxide of iron; the lighter the blue colour, the purer the salt. The common *green vitriol,* or *copperas,* yields a much deeper blue precipitate than the Pharmacopœial preparations, in consequence of a larger portion of the per-sulphate present.

Composition.—Crystallized pure protosulphate of iron consists of—

1 atom protoxide iron	..	36
1 atom sulphuric acid	..	40
7 atoms water	....(9×7)	63
		139

Its formula, therefore, is $\dot{Fe}\,\dddot{S}\,7\dot{H}$.

In almost all cases a little persulphate is mixed with the protosulphate.

Physiological effects.—This is, in its local action, one of the most powerful of the ferruginous salts. In *large doses* it acts as an irritant, and when swallowed, produces pain, vomiting, and purging. This has been shewn by the experiments of Dr. Smith on dogs, as well as by a case recorded in one of the German magazines, of a girl who took about an ounce of the salt, and suffered for seven hours with colicky pains, vomiting, and purging. Taken in *smaller doses* it acts locally as an astringent, diminishing the quantity of intestinal fluids, while its constitutional or remote effects are similar to those of the ferruginous preparations generally.

Uses.—Sometimes it is employed as a local agent; for example, as a styptic applied to bleeding from a number of small vessels, or as an astringent applied to ulcers or mucous membranes, to diminish secretion, as in ophthalmia, leucorrhœa, gleet, &c. Internally, it is objectionable where we require the long-continued use of iron, on account of its powerful local effects, whereby it is apt to disorder the digestive organs.

Administration.—The dose is from one to five grains.

Tincture of the Chloride of Iron.

This compound is called in the Dublin Pharmacopœia, the *liquor of muriate of iron.* Its usual denomination is *tincture of the muriate of iron.*

Preparation.—It is prepared by dissolving the powder called, in the Pharmacopœia, subcarbonate of iron, in muriatic acid, and adding rectified spirit of wine to the clear liquid.

Theory. — The subcarbonate of iron of the shops is, as I have before mentioned, a mixture of peroxide and protocarbonate of iron. By digestion in muriatic acid some water is generated, the per-and proto-chlorides of iron are formed, while carbonic acid gas escapes. The two chlorides dissolve in the spirit. By the action of the free muriatic acid, or the chloride of iron, on the alcohol, a little muriatic æther is formed, which is readily detected by the smell.

Properties.—It is a reddish or yellowish-brown solution, having a sour styptic taste, and an odour resembling that of muriatic æther. By exposure to the air the

protochlorde of iron attracts oxygen, forming peroxide of iron, which is precipitated, and the sesquichloride is left in solution: the peroxide is thrown down for want of free muriatic acid to dissolve it. When prepared according to the directions of the College, its specific gravity is 0·994; but Mr. Phillips found that the tincture of commerce varied in its specific gravity from 0·951 to 1·030. This doubtless depends on the varying strength of the muriatic acid.

Composition.—This preparation contains

Perchloride of iron.
Protochloride of iron.
Muriatic æther.
Rectified spirit.

If prepared according to the London Pharmacopœia, half a fluid ounce of the tincture should yield, by the addition of an alkali, $16\frac{8}{10}$ grains of peroxide of iron, which, of course, comes from the decomposition of $30\frac{24}{100}$ grains of the perchloride. Mr. Phillips has found the tincture of commerce to yield from $9\frac{3}{10}$ grains to 20 grains of peroxide.

Physiological effects.—This is, in its local action, one of the most powerful of the preparations of iron. The free muriatic acid which the tincture of the shops frequently contains, contributes to increase its irritant properties; and in Dr. Christison's work on Poisons, you will find a brief notice of a case in which an ounce and a half of this tincture was swallowed, and death occurred in about six weeks,—the symptoms during life, and the appearances after death, being those indicative of inflammation. The general or constitutional effects of this preparation do not appear to differ from those of the ferruginous compounds generally.

Uses.—It is sometimes, though not frequently, used as a local agent. Thus it is applied as a *caustic* to venereal warts, and to spongy granulations. As an *astringent* it is sometimes employed as a local application to ulcers attended with a copious discharge; or as a *styptic*, to stop hæmorrhage from numerous small vessels.

Internally, it is frequently used in gleets and leucorrhœa, often in combination with the tincture of cantharides; also in spasmodic stricture. In passive hæmorrhages from internal organs (as the kidneys, uterus, and bladder), it is likewise administered. In scrofula it has been used as a tonic. Its other uses are similar to the ferruginous compounds generally,—always recollecting its powerful local action, and, therefore, that in cases requiring the long-continued use of iron, it is less advisable than some other ferruginous preparations whose local effects are milder.

Dose.—The dose is from ten to thirty minims, taken in some diluent.

Ferrum Ammoniatum.

History and etymology.—This compound, which was known to Basil Valentine, has had various appellations, such as *flores salis ammoniaci martiales*, *ferrum ammoniacale*, or *ferrum ammoniatum.*

Preparation.—In the Pharmacopœia it is ordered to be prepared by dissolving the powder, called subcarbonate of iron, in muriatic acid, filtering the solution, and evaporating. The residuum, mixed with muriate of ammonia, is to be sublimed. The usual method, however, of forming it, is by mixing a solution of chloride of iron with a solution of muriate of ammonia, and evaporating to dryness.

Theory.—When the subcarbonate of iron of the Pharmacopœia is mixed with muriatic acid, two chlorides of iron are formed (the per- and the protochloride), a little water is generated, and carbonic acid escapes. By the evaporation of the solution with a solution of muriate of ammonia, the chlorides of iron, and the muriate of ammonia, mix and combine to form this compound.

Composition.—According to Berzelius, it is to be regarded rather as the result of the simultaneous crystallization of muriate of ammonia and perchloride of iron, than as a true chemical combination of these two salts. Mr. Phillips states that the quantity of peroxide of iron obtained from 200 grains of this salt, was in one case $2\frac{1}{10}$ grains, in another 3 grains.

Properties.—It is met with in the shops in yellow or orange crystalline grains, having a feeble odour, and a styptic saline taste.

Effects.—It produces the general effects of the ferruginous preparations; but, on account of the small and variable quantity of iron present, it is a compound which is of little value. The muriate of ammonia present renders it slightly aperient.

Uses.—It has been employed in glandular swellings, in amenorrhœa, and other cases where the preparations of iron are usually employed.

Administration.—It may be given in substance in doses of from four to twelve grains. In the London Pharmacopœia there is a *tincture* made with proof spirit. According to Mr. Phillips, 13 fluid drachms of it are equal to 1 fluid drachm of the tincture of the muriate of iron.

Ferrotartrate of Potash.

History and synonymes.—This preparation was first described by Angelus Sala, at the commencement of the seventeenth century. In the Pharmacopœia it is

termed *tartarized iron*. It has been known by other appellations, such as *chalybeated tartar*, and *tartarized tincture of Mars*.

Preparation.—It is prepared by rubbing iron and bitartrate of potash together, then adding water, and exposing the mixture to the air for about twenty days. It is afterwards boiled in water, the solution filtered and evaporated, and the residuum rubbed to powder.

Theory.—The iron decomposes a portion of the water, disengaging its hydrogen, but attracting its oxygen to form protoxide of iron, with which a portion of the tartaric acid of the bitartrate combines to form prototartrate of iron. By exposure to the air this salt attracts more oxygen, and becomes pertartrate of iron, which unites with the tartrate of potash to form a double salt, namely, the ferrotartrate of potash.

Composition.—Mr. Phillips says it consists very nearly of—

Peroxide of iron........	20
Bitartrate of potash	80
	100

The peroxide of iron is presumed to be in combination with part of the tartaric acid of the bitartrate, forming thus a tartrate of iron, which performs the function or part of an acid, or electro-negative, to the tartrate of potash, constituting thus a double salt,—the *ferrotartrate of potash*. That the oxide of iron is a constituent of the acid portion of the salt, seems shewn by the fact, that neither the alkalies nor their carbonates precipitate it; nor does ferrocyanuret of potassium produce a blue precipitate with it, unless an acid be added.

Properties.—As met with in the shops it is an olive-brown inodorous powder, having a styptic inky taste, and reacting as an alkali. It dissolves in about four times its weight of water, and is slightly soluble in alcohol. It is deliquescent, probably from the tartrate of potash it contains.

Physiological effects.—In most of its effects this preparation agrees with the ferruginous preparations generally. The peculiarities of its operation seem to be these: it is less constipating, and is thought to be less exciting to the vascular system than some other chalybeates.

Uses.—We rarely use this compound, but it may be administered in most cases in which iron is indicated.

Administration.—The dose of this compound is from ten grains to half a drachm, in the form of solution or bolus—combined with some aromatic, to prevent its disordering the stomach.

Solution of Ferrotartrate of Potash—Vinum Ferri.

History.—I have already related to you the story told by Apollodorus, of the recommendation of iron wine by Melampus for impotence, more than 3200 years since.

Preparation. — This compound is prepared by rubbing iron-filings with the supertartrate of potash, and exposing them with water to the air for several weeks, by which a ferrotartrate of potash is formed, as in the last preparation. This is dissolved in sherry or Rhenish wine, or, according to the last edition of the London Pharmacopœia, in a mixture of spirit and water.

Composition.—It is a solution of the ferrotartrate of potash, with excess of the bitartrate of potash. Made according to the directions of the London College, Mr. Phillips states, a pint of the wine contains 16 grains of the peroxide of iron; so that *a drachm* of the tincture of muriate of iron would contain as much iron as *four ounces* of this wine. It is very absurdly termed *vinum* ferri, since it contains no wine.

Physiological effects.—The effects of vinum ferri are those of the ferrotartrate of potash combined with those produced by spirit.

Uses.—It is employed in chlorosis and other cases calling for iron. The objection to it is the small quantity of iron it contains.

Dose.—It is given in doses of from one to three or four drachms.

Liquor Ferri Alkalini.

This preparation was formerly termed *tinctura martis alcalisata stahlii.*

Preparation.— Dissolve iron in dilute nitric acid, then add it to a solution of subcarbonate of potash, frequently shake the mixture, and afterwards pour off the solution.

Theory.—By the action of iron on nitric acid we obtain pernitrate of iron, and binoxide of nitrogen.

Re-agents.	Results.
$4\ \overset{\therefore\cdot\cdot}{N}$	$\overset{\cdot\cdot}{N}$
$2\ Fe$	$\overset{\cdot\cdot\cdot}{Fe}\ 3\ \overset{\therefore\cdot\cdot}{N}$

This solution of pernitrate of iron, with excess of nitric acid, is then mixed with the solution of subcarbonate of potash: nitrate of potash is formed — carbonic acid escapes, and peroxide of iron precipitates; this, however, is speedily re-dissolved by the combined agency of the carbonic acid, and the excess of subcarbonate of potash employed. By standing, part of the nitrate of potash crystallizes.

Composition.—It is not quite certain in what mode of combination the ingredients of this mixture exist. In all probability

it is to be regarded as consisting essentially of the *ferro-carbonate of potash;* that is, as a double salt, composed of the per-carbonate of iron as the acid, and carbonate of potash as the base. Each fluid drachm, according to Mr. Phillips, contains nearly two grains of peroxide of iron.

Properties.—It is a dark brown-red liquid, transparent, and of an alkaline taste.

Physiological effects. — It possesses the general properties of the chalybeates, and in addition, those of an antacid.

Uses.—I believe it is never used in this country.

Dose.—The dose is from 30 minims to a drachm, or even more than this.

Iodide of Iron.

History and synonymes.—This compound, sometimes termed *ioduret*, or *hydriodate of iron*, was introduced into use as a medicine by Dr. A. T. Thomson.

Preparation.—It is readily procured by adding 30 grains of iron filings (or iron wire in small pieces) to about 100 grains of iodide, contained in about 14 fluid drachms of distilled water. Heat the liquid, to drive off the excess of iodine, until it become colourless, filter, and evaporate to dryness.

Properties.—Prepared as now mentioned, it is an opaque grey mass, with a metallic lustre; very deliquescent, and when dissolved in water forming a green solution, which, by exposure to the air, absorbs oxygen, deposits oxide of iron, and is converted into periodide of iron.

Composition.—It consists of—

1 atom iodine	126
1 atom iron	28
	156

Its formula, therefore, is Fe I.

Physiological effects.—Its local action is that of an irritant; its remote effects are supposed by Dr. Thomson to be those both of iron and iodine already mentioned. Whether the iodine is thrown out of the system in the form of iodide of iron, or of an alkaline iodide, has not yet been satisfactorily ascertained.

Uses.—It is indicated where we wish to have the combined operation of iodine and iron; as in scrofula, chlorosis, amenorrhœa, glandular enlargements, some forms of bronchocele, &c.

Doses.—From two to four grains dissolved in water, flavoured with orange-peel.

REPORT

ON THE

MEDICAL INSTITUTIONS OF IRELAND.

By Wm. P. Borrett, M.D.
Assistant Commissioner for inquiring into the state of the Irish poor.

(*Communicated by the Author.*)

[Concluded from p. 324.]

SUPPLEMENTARY OBSERVATIONS AND SUGGESTIONS RESPECTING THE SANITARY STATE OF THE DISTRICTS VISITED.

Having completed my account* of the different medical institutions which came under my observation—having noticed their constitution, management, and control, their practical operation, and the abuses and defects to which they are severally liable—I might at once bring my report to a close, as having satisfied the points of inquiry to which I was especially directed. But having been at some pains to make myself acquainted with the actual condition of the poorest classes by personal inspection, and having with this intention visited the sick and indigent at their own dwellings, in company with the medical and other gentlemen who attended at our examinations, I shall better, I think, attain the object proposed to me by the Board, if, before I conclude, I allude briefly to the sanitary state of the districts which I traversed, and to the amount, as well as to the nature and cause, of the diseases which were prevalent, for the proper and effectual treatment of which the medical institutions have been established. But so much has been already laid before the public in reference to these matters through the labours of commissions, through parliamentary investigations, and various official documents and returns, that it is unnecessary for me to go into lengthened details; and further, I have already adverted to them in the first part of my report, under some of the heads into which the subject of the dispensaries is divided.

It cannot be a question with those who are at all conversant with the description of hospital-patients, such as they are met with in the two countries, that there is not only a greater amount of disease, but that it is of a more aggravated and malignant character in Ireland, generally speaking, than in England, in Dublin than in London. And the cause must be as

* See last number of the Med. Gaz.

evident to an unprejudiced observer as the fact itself. It is to be attributed to the greater destitution and distress of the Irish than the English people, to their being worse lodged, clothed, and fed, and to the more general and excessive use among them of spirituous liquors. To point, as some persons are wont to do, to a few sturdy and robust individuals, whose stamina and natural powers have been proof against the debilitating circumstances of their condition, and to argue thence for the general excellence of their physical state, for the wholesomeness of their food, and in favour of their mode of life and habits, is to make the exception the rule. Those who *have mixed with the lowest* classes in Ireland, whether in town or country, know full well how much more frequent are wan and haggard countenances, shattered constitutions, and the signs of a premature old age, than the expression of blooming health; and will recollect how often they have turned in pity and disgust from the painful and sickening scenes presented to them by squalid decrepid human objects, disfigured by disease, or a complication of abject penury and disease.

In the rural districts, and in the outskirts of towns, the poor Irish, generally speaking, live in huts or cabins of mud or loose stones. Each hut consists of but a single apartment, and nothing is to be seen within but a pot to boil potatoes with, a truss or wad of dirty straw, and some rags for a coverlid, under which the different members of the family creep at night, herding together for the sake of animal warmth, and often in a state approaching to nudity. The straw is not changed for six months together, although a few pence would purchase enough for a bed. Sometimes a table and a couple of stools may be seen, and even a dresser, with some crockery-ware, but these and other common articles of furniture are for the most part wanting. The pig is invariably found in the same apartment. He has his corner assigned to him, and is considered to have the best right to be accommodated, as he furnishes the means of paying the rent. The muck heap, next to the pig, is an object of especial care. The children are employed in scraping the dung off the roads, and collecting materials of filth and ordure from all parts. Unless they can accumulate sufficient manure for the patch of potato-ground, the crop, or in other words, the very means of subsistence, would fail. A lane or alley is made up of rows of cabins of this kind, each cabin having its dung-heap treasured up under the window, if there be one, or by the door, with its constant accompaniment of a pool of stagnant water, each cabin being occupied by one or two families, with from four to six individuals in each family; so that the lanes are floating in filth, or stopped up with rubbish and dirt, and poisoned with noxious effluvia. If the poor dwell in houses instead of huts, it is surprising how many a house is made to contain. Partitions are run across each room for the accommodation of two or more families. The landlord never repairs, but leaves the houses to crumble about the tenants' heads. The rent is about one shilling per week for a whole room, or eight pence for half, so that a small house of four or six rooms will bring in a yearly rent of 12*l.* or 15*l.*

When visiting these cabins, I have found the inmates so destitute of clothes, that they were unable to leave their homes, and they had often parted with every thing, even to the rags on their backs. The catholic clergymen told me it was a common thing for them to stop away from chapel for want of clothes. I recollect on going to visit a sick patient with the medical attendant to the dispensary at Athlone, (Westmeath side), that I saw a grown-up girl skulking in the corner of the cabin, who was ashamed to be seen, and unable to go out in search of employment, because she had no decent clothes to put on. But it would be impossible to enumerate the various instances of utter destitution and distress of this kind which came before me. Those alone which I saw at Cork, in company with the Rev. Mr. Egan, would suffice to fill a volume, and the picture of extreme misery bore the same revolting character, although it might be shadowed out a little more darkly in one place than in another, whether in Bantry or Kinsale, Kenmare or Killarney, Strokestown, or elsewhere, in the three counties which I visited in the course of my inquiry.

To the want of clothing and exposure to wet and cold it was usual for medical men to refer the great prevalence of pulmonary affections. Coughs, colds, rheumatic pains, together with consumptions, in those who were predisposed by constitutional taint, or the combining influence of impoverished diet, were caught by lying on the damp straw and the earth floor, broken up and holding pools of water. Bowel and stomach complaints, and innumerable cases of a dyspeptic form, were ascribed to the potato diet, or rather to the poor partaking of the potato when unfit for use, either from decay, or from its being unripe, or imperfectly cooked. The coarsest kind of potato, called a "lumper," is preferred, from its producing a more exuberant crop, and from its much larger size. It is eaten when only parboiled, as it goes further in this state; it sits

heavier upon the stomach, and prevents the feeling of inanition for a longer time. In most places it forms the only kind of food to the poor, who eat it dry, morning, noon, and night, if they can afford three meals a day; or, at best, with the addition of a little milk, or the variety of a salt herring. Wheaten bread, an egg, or piece of bacon, are luxuries they never think of. Although it did not seem to be the general opinion of the medical men, that the constant use of any one article of food, if wholesome, would of itself be productive of disease, still they were agreed that the potato diet, for the reasons just stated, must be more or less injurious to the general health. The food, too, generally given to children was by no means adapted to their tender age. Infants of 12 months old are often fed upon fish in maritime towns, and it is a common practice with the wretched mother to sustain her offspring by transferring to it the morsel of potato which she has first prepared by masticating it herself. Such digestible substances as barley, oatmeal, and rice, are scarcely attainable, on account of their cost, trifling as it is.

The season of the year at which the poor are particularly driven to subsist upon bad food, is in the interval between the consumption of the old stock of potatoes and the coming in of the new crop; and upon referring to the Dispensary-books it will be found that there is an increase of gastric and enteritic affections, of pyrosis, diarrhœa, dysentery, &c. during these months. It is precisely at this period, too, that fever is apt to prevail. The existence of fever in a greater or less degree may be taken as a criterion of the poverty of the people, especially in regard to the supply of food.

The scarcity at this time may be so great, that the poorer classes are obliged to have recourse to weeds and shell-fish, or what else they can collect along the shore, for sustenance. A yellow weed, known by the name of "prassick," and found every where growing among the corn, was pointed out to me as affording a common means of support. During the months of last June and July, there was a great dearth of agricultural employment, and so much destitution in consequence, that many persons actually perished from want. The truth of this statement was attested in particular by the medical attendant of the Dispensary at Kildorrery, by the Roman Catholic clergyman of the same place, and the gentlemen present at the examination. It was not, they remarked, from the scarcity of potatoes, and their consequently high price, that this took place, for potatoes were selling at 6*d*. per weight of twenty-one pounds during the whole time; but solely and entirely from the utter inability on the part of the poor to buy them at all. If potatoes, they continued, had been only 2*d*. or 3*d*. per weight, they would have been alike beyond their means. It was no uncommon occurrence at the time for labourers to work merely for their daily food; and while they were receiving it at the farmers' houses, their wives and families went entirely unprovided for. Nor was this state of distress confined to the labouring classes alone; several instances occurred where gentlemen became security to millers for sacks of flour, in favour of respectable farmers, who were unable to purchase themselves. No relief was obtained from government, and the only aid which the poor received consisted of about fifteen pounds collected at the Roman Catholic Chapel, and laid out in purchasing meal, which was distributed daily to some hundred individuals. The parish priest stated that government advanced some money to one or two of the neighbouring parishes, but he was not acquainted with the circumstance at the time, otherwise he would have made application in behalf of his own flock.

Before quitting Kildorrery I went with the medical officer to see a poor woman who had been recently delivered of twins. I found her in a wretched hovel, and in a state of utter destitution, as she had been obliged to dispose of her crop of growing potatoes during the prevalence of the distress which has been detailed above. Her husband, she said, was out at work, but he received no pay for his labour, as he was only employed to work out some assistance which had been rendered to him at the time of the general pressure.

Thus subject to a periodically occurring scarcity, and wretchedly fed at other times,—exposed to the vicissitudes of the climate, to wet and cold, to the pernicious influences of bad habitation and clothing,—exhausted by task-work, or toil undergone for a stipulated wage, or desponding for want of employment,—distressed by many combining causes of a moral and physical kind constantly warring against their health, and predisposed by their debilitated state,—where is the wonder that the Irish poor are peculiarly liable to disease—that fever, dysentery, and other contingently contagious complaints, become rife at particular seasons, and spread with a frightful violence through entire districts, sweeping off the inhabitants by large numbers at a time.

In 1817, it appears from a report published upon the subject of the contagion, that one million and a half of persons, upon a moderate calculation, suffered from fever; and of this number at least 65,000 died. Although since that time there has been no epidemic attack, still cases of

fever have constantly occurred. I saw several of a bad typhoid form when I visited the fever hospitals in the latter part of the summer of 1834. Of late years the ravages of a contagious fever had been superseded by the terrible scourge of cholera, which seemed to have the power of converting other forms of disease to its own type. It was observed by medical men, that fevers and other complaints had materially declined since this epidemic appeared. It ravaged Ireland in 1832, 1833, and 1834, and attacked several places twice, and a few even three times (Bantry, Tralee, &c.)

In general, through the active interposition of the better classes in behalf of the sick poor—whether as an act of charity or of self-defence, it matters not —and through the adoption of proper precautionary means, a check was put to the progress of the pestilence, and the proportionate number of deaths did not exceed those which occurred in other countries afflicted by the same visitation, although, from the wretched condition of the people, a greater mortality was to be feared. Those who were better off exerted themselves to meet the public calamity, and administered the money which was raised by subscription and advanced by the government, in the best possible way. Streets were swept, manure and filth removed, lime thrown into the sewers, cabins white-washed and supplied with clean straw, clothes and bedding fumigated, hospital accommodation provided, and the services of medical men secured. A perfect confidence prevailed among all classes, and none of the sick refused to enter the hospitals, with the exception of a few places only, where some disturbances occurred at the first outbreaking of the disease; as at Athlone, &c.

But the above wise and humane regulations were not always carried into effect. Through their entire neglect at Strokestown, upon the second irruption of the cholera, the worst consequences ensued. At the examination into the affairs of the Dispensary, the Assistant-Commissioners were furnished with a list of those who died of the epidemic, containing upwards of sixty names; and a melancholy description of the ravages of the disease, and of the utter abandonment and distress of the people, was given by those who were eye-witnesses of the scene. The Catholic clergyman stated that he went about from house to house, accompanied by some of the persons present, to try and collect a few shillings for nurse tenders and coffins. He found the doors of the dwellings of the poor in many instances open, and the wretched inmates lying about the apartment, ill and unable to help themselves, and so crowded together that he was obliged to step over them in order to get to the side of those who stood most in need of his services. There was no one to be found to render any assistance, or even to remove the dead. Those who were well off had fled at the first report of the return of the disease, and for several weeks the place was deserted: no markets were held, no business transacted of any kind. On the first visitation of the cholera the usual means had been taken to meet the calamity, but nothing was attempted on the second attack—no board of health appointed—no medical men engaged—no money raised by subscription, and even the house was withheld which had served as an hospital the first time, although thirty pounds had been expended out of the general fund belonging to the town in raising it one storey, roofing it with slate, and putting it in complete repair. It was therefore considered a hardship, and, indeed, unjust, that the use of this house should not have been allowed to the inhabitants on the recurrence of the disease, or at least that some other house was not offered in lieu of it. It may be added, that the whole town and neighbourhood belong to a nobleman who is an absentee for ten months out of the twelve, and that no information could be obtained of the agent, in regard either to the grievance just cited, or the state of the funds of the Dispensary to which he was the treasurer; since he declined forming one of the meeting, upon the ground that "he did not see what good would result from the inquiry."

The demoralizing tendency of *dram-drinking*, and the hideous amount of poverty and disease which the habitual indulgence of this vile passion has produced among the lower classes, are too well known to need additional notice or confirmation: yet it is an evil of such a magnitude, that it cannot be passed over in any inquiry relating to the moral or physical condition of the Irish poor.

Owing to the great cheapness of whiskey, and the extraordinary facilities and encouragement which are given to its sale, its use, even to excess, has become universal, and almost attained to a maximum consumption, having reference to the amount of population. In a few places, perhaps, its use had declined; a fact to be rather ascribed to the actual inability of the people to purchase it, than to the operation of habits of sobriety and the influence of any moral principle. In general, however great their distress, they contrive to find means for the gratification of this favourite passion. Misfortune seldom fails to make the sufferer a drunkard, even if he happen not to be already addicted to spirituous drinking. The small farmer,

who, if his own statement can be believed, is unable, for want of capital, to till his land to the most advantage, never concludes a bargain except over drink, and rarely leaves the market sober. The mechanic, while he deplores that he has no means to purchase tools, gets the more intemperate the less he earns; and the labourer who goes without the common necessaries of life, and is covered with rags, consumes his fair-days, holidays, and Sundays, in drink. Perhaps fishermen are the most improvident of all classes—their occupation being a kind of lottery, and their gains most precarious, and irregularly made. They receive a portion of the sales of the fish they catch in lieu of wages. These they expend in whiskey, making no reservation against the future. At sea they drink to keep out wet and cold; on shore, they plead as an excuse for drinking, the hardships they undergo in being exposed nights and days, in open boats, at sea. Sunday being a day for recreation and rest, it is the chosen time for tippling. The laws for shutting-up public houses are not enforced, nor is it usual with magistrates to fine or punish for drunkenness. In towns where they still commit for this offence, the gaols are crowded. The mode of licensing public-houses, by which they have been prodigiously multiplied of late years, as well as the exceeding cheapness of whiskey, must contribute to its inordinate consumption. A spirit license, which used to cost 25*l*. and was afterwards reduced to 13*l*., may now be obtained for 2*l*. 10*s*. upon a 10*l*. house, and application may be made at any town where petty sessions are held; the effect of which has been to open the most wretched and fulsome abodes for the sale of spirits. These abodes become the haunts of persons of the lowest description and the worst of characters. The maintenance of so many dram-shops is chiefly owing to the ejected and broken-down farmers, who, unable to turn their time and labour to better account, dispose of what is left to them in the purchase of a stock of whiskey, trusting, for a market, to their country acquaintances and friends.

Various restrictions and regulations have been suggested to me, with the view of limiting the sale of whiskey. Its sale in grocers' shops was particularly objected to, as, by being removed from the fear of detection, the female servants who are sent to the shops become initiated into the habit of drinking spirits. The reduction of the price of tea and coffee was also recommended, as well as the introduction of a wholesome cheap malt liquor—a change which had, indeed, been effected with success in a few places; but, although it was felt that the substitution of beer for ardent spirits would conduce materially to the improvement of the health and comforts of the labouring classes, it had not been generally attempted, or it had fallen into disuse, upon the vague supposition that it tended to disagree with the ordinary potato diet of the people. The plea was, that potatoes required a more stimulating beverage, and whiskey, if taken in moderation, was useful in rousing the stomach and promoting digestion. The damp state of the climate was another equally erroneous excuse for preferring spirituous drink to malt liquor: and generally the poor have recourse to whiskey as a medicine in case of illness, and it is very difficult to persuade them of the mischief of such a practice. It is only the *bad liquor* *, according to them, which can do harm. By bad liquor is meant the adulteration of whiskey with deleterious substances, of which I was told a remarkable instance at Athlone, in the case of a boy, the son of a publican, who was destroyed by vitriol, which he had got at in the absence of his father. The publican acknowledged he kept it in the house for the purpose of mixing with the whiskey.

It is the common custom for a man to take his "morning" as it is termed, or glass of whiskey, before he goes to his daily labour. He feels disinclined, and indeed unfit to work till he has removed the vapidness and yearning of his stomach by a spirituous potation. The stimulus passing off after a while, recourse is had to a second and third dram, to appease the sensation of craving which is as constantly returning. In this way it is not long before the brain is made to feel the intoxicating effects of the spirit which has been imbibed in an empty state of the stomach, and a delirious excitement is produced. The constitutional susceptibility to this species of delirium is increased by the frequent habit of exciting it, and becoming at length confirmed, the patient is affected with a peculiar disease, which I cannot so well describe as by quoting the words of Surgeon Adams, of Dublin, through whose kindness I learned many interesting facts relating to this particular form of disease, and other effects which he had observed

* In proof of this, I may state what occurred to a medical officer at one of the Dublin hospitals. While dissuading some persons from dram-drinking, over the body of one of their friends who had fallen a victim to the cholera, he was interrupted, in the midst of his exhortation, by an old woman, exclaiming, "there, don't be blaming the whiskey; why sure it's the *bad liquor* that's doing it." The cry was caught up, and it was quite vain for him to attempt to say another syllable. It became a very general notion that whiskey, so far from being provocative of the cholera, was the best preservative against it; and drunkenness was never more prevalent than during the time the pestilence was raging.

produced by whiskey upon the general health and constitution of the poor of that city.

"Some abstain from whiskey for months together, and during this period they make a great sacrifice of comfort, and suffer the greatest privation in their own minds; they compensate themselves at the end of the fixed time by drinking for several days successively, or as they say themselves, 'successfully.' They thus produce a peculiar state of constitution, which makes them a prey to a species of delirium or fever, which in this country is well known by the name of whiskey-fever.

"This is characterized by the greatest apparent vivacity of mind and disposition. The patient sings and talks the whole day and night without intermission; says the most amusing things, betrays every secret he has, imagines he is riding or driving through the country, that he is pursued, or pursuing some ideal object. This state will last two or three days, during which the patient neither eats nor sleeps; he suffers no pain even when he has met with an accident, such as broken ribs; he will, regardless of any species of motion, (which, when free from this peculiar state, would cause him pain as if he were stabbed with a poniard), persevere in loud singing and vociferations: even when the subject of a compound fracture, he will get up and stagger across the ward while the broken leg is dangling about. At the end of two or three days it is usual for him to fall into a deep sleep, which lasts for 12, 16, or 20 hours, and then to awake well, but very weak.

"During the whole progress of this case real debility but apparent strength characterizes the complaint. There are nervous tremblings all over, cold clammy perspirations, and weak pulse. Whiskey, punch, and opium, in various forms are the proper remedies. A large bleeding sometimes had recourse to, so as to induce fainting, has in sundry cases produced death. The disease, in general, is got under for a time, and again recurs: sometimes, instead of sleep, after the excitement as described above has continued more or less time, the case terminates in convulsions, coma, and death.

"This nervous delirium, or whiskey-fever as we call it, is not confined to us. It is called 'vinomania' in France, and is known by the name of 'delirium-tremens' in other countries. Sometimes it is induced by a wound, or accident of some kind; but it very frequently comes on without such an exciting cause. What we term the predisposing cause is, an habitual indulgence to excess in ardent spirits. Men are generally the subjects of it, more rarely women, but even children are liable to it. I have been assured by one medical friend, that he has seen a child under ten years old affected by it.

"The effects of whiskey on the *idle* seem very fatal; the working-man bears a large quantity better. I have frequently known very laborious, yet whiskey-drinking men, earn by honest industry some little capital, and by such means become enabled to set up in business for themselves; and now continuing their former habit of drinking, while they cease to work as they were wont, they soon fall into ill health, lose all appetite for everything else, and live on whiskey alone. They usually die of diseased liver, consumption, or whiskey-fever. The small, shrivelled-up, hardened liver, called the scirrhous liver, or whiskey-liver, is generally found associated with dropsy. Organic diseases of the stomach and liver are the well-known consequences of dram-drinking in all countries.

"Immediate death is sometimes the consequence of a large potation at once of whiskey. Such cases as the following have been admitted into Jervis-street Hospital:—A man gets astride on a barrel, say at the Custom-House stores or docks, and by means of a straw inserted into the cask, sucks up whiskey in such a quantity that he falls down intoxicated, and soon becomes perfectly insensible, quite in an apoplectic state. If the tube of the stomach-pump be speedily introduced, and the whiskey drawn off, and aperient medicine sent down without withdrawing the tube, the patient recovers his consciousness, and rallies, if his case be judiciously managed; frequently, however, such patients die, either from want of due care or expeditious means being resorted to to get rid of the whiskey.

"By far the greater number of accidents admitted into Jervis-street Hospital, are either directly or indirectly the effects of whiskey-drinking. Drunken broils, domestic quarrels, while under the influence of spirituous liquor, are so frequent as scarcely to be worth mentioning. On Monday morning at the Dispensary women very commonly attend with cut heads, bruised faces, eyes encircled with black blood-marks,—a very common accompaniment to these are broken ribs. They are blooded, bandaged, and get some medicine, and return to their families, *forgiving* their husbands, at whose hands, in general, they have received the injury. *If the husbands were drunk*, they consider it an apology. Occasionally the women themselves are in fault, and men come to complain of having been beaten by their wives or other women. Injuries, however, of a much more serious nature, which have been caused by drunken quarrels, are frequently taken into the hospital. Thus, there have been four cases

of fatal stabbing within a short period. One of these, a wife, stabbed her husband (by whom she had four children) in the abdomen with a knife. The intestines protruded, and, although the best advice was immediately procured, the wounded man died of inflammation. In another case, two brothers, grown up and nearly of the same age, after drinking six days together, ended by quarrelling; one stabbed the other in the stomach — he vomited blood, and died in two days, although the best attendance was given him. Besides these cases there have been others of a fatal character from rupture of the intestines and bladder. They commonly occur in drunken broils, ending in a wrestling, or boxing match, between two of the party, when on falling the knee or elbow of the one does the injury which proves fatal to the other. I may add, that during all holiday times—about Christmas, the times of the fairs in the neighbourhood of Dublin—at these periods, the resident apothecary must be on the alert, and have his means in readiness for all accidents, as military surgeons make ready upon the eve of a battle."

CASE OF

RHINOPLASTIC OPERATION.

To the Editor of the Medical Gazette.

Sir,

I transmit to you the history of a case of rhinoplastic operation, for which, if you consider it sufficiently interesting, I hope you will find a place in your Gazette.—I am, sir,

Your obedient servant,

James Douglas.

Member of the Faculty of Physicians and Surgeons of Glasgow, Lecturer on Anatomy, and formerly House-Surgeon to the Glasgow Royal Infirmary.

93, Brunswick-Street, Glasgow,
27th May, 1836.

Agnes N., aged 25, was admitted into the Royal Infirmary, under Dr. M. S. Buchanan, August 26th, 1834, while I was his house-surgeon. She had been suffering from lupoid ulceration of the face for some months; there was an ulcer on the upper lip, and numerous cicatrices, while the soft parts of the nose were completely destroyed as high as the middle of the ossa nasi, leaving a horrible opening through which the septum nasi and inferior spongy bones were seen. She was not at all benefitted by her residence in the house, and left it in December. Having gone home, and given up the use of medicine, cicatrization at length took place, about the month of May. She remained much troubled with frontal headaches, and tendency to inflammation of her eyes, which symptoms I am inclined to attribute to the access of the cold air into the superior nasal fossa and frontal sinuses.

In February last, she consulted me on account of an attack of corneitis, which was soon subdued by calomel and opium, and informed me that she intended to get a new nose made, and that as she had been under my care in the infirmary, that she wished me to be the operator. Accordingly, on Sunday the 3d of April, I proceeded to the operation, with the assistance of my friend and former instructor, Dr. M. S. Buchanan, and in presence of Dr. Lawrie, Professor of Surgery in the Andersonian University, Mr. Macintyre, of Newcastle, Drs. Weir and Dick, of this city, and Dr. William M'Kenzie, of Paisley.

Having seated the patient in an arm chair, with her head supported by Dr. Lawrie, I commenced by paring the edges of the opening. Between the eyes the cut began by a transverse incision, half an inch in length, and below, over the middle of the upper lip, it finished by a transverse square wound, into which the columna nasi was to be inserted. I then laid upon the forehead the model, cut out of sticking-plaster, according to Dieffenbach's directions, about one-fourth larger than the estimated size of the new nose. As the columna extended as high as the hairy scalp, the hair was removed, and about a quarter of an inch of the scalp taken for the part of the columna to be fixed to the lip. The plaster was then circumscribed with the scalpel, and the flap dissected down off the pericranium. Where it terminated between the eyes it was about 5-8ths of an inch broad, and the cut on the left side was prolonged a little farther downward than on the right, to facilitate the turning of the flap. Three small vessels were tied, one where the columna was taken from, and a branch of each angular artery. An artery bled very freely in the flap, but was allowed to remain unsecured, as Dieffenbach advises. A good deal of annoyance was occasioned to the patient by the blood running in considerable quantity into the mouth from the nose.

About 6 oz. appeared to be lost. The oozing having ceased, and the parts been dried, the flap was twisted to the left, laid down, and fixed by twelve needles with the twisted suture, and three points of the interrupted suture. The wound on the forehead was brought together a little with adhesive strap and bandage, and a strip of oiled lint was introduced into each nostril, merely to keep them from adhering, and not so large as to produce distension. No other dressings were applied. She bore the operation well, which lasted nearly three quarters of an hour, the stitching proving very tedious. The nose was flaccid, and had assumed a livid colour throughout. In the evening it had begun to swell, and was somewhat red at the margins. She complained of little pain except in the forehead. To take 30 drops of laudanum.

Next day the nose was a good deal swollen and prominent, of a dusky red colour; no increased heat: slept pretty well. To repeat laudanum, and take physic in the morning.

3d day. — Nose rather better, and slight discoloration around two of the needles. A piece of lint dipped in oil was laid over the whole nose.

4th day.—Two needles removed, and the strips of lint in nostrils replaced by fresh ones. Perfect adhesion has taken place; wound on forehead suppurating kindly; oiled lint continued over nose.

5th day.—Some œdematous swelling around left eye; needles of left side removed, and their wounds bled freely. To take salts.

6th day.—Needles in right side and in columna removed; a strip of oiled lint laid along each line of union, and new dossils put into nostrils; œdema gone.

10th day.—A wash with chloride of lime was ordered to be injected into nostrils several times a day, as the smell was very disagreeable.

21st day. — Nose seems now cicatrized within, at least there is no discharge, and chlorine wash is dispensed with; all the swelling is now gone, and the integuments of the nose have a perfectly natural appearance. The twist in the flap at root of the nose lies perfectly flat, and will not require to be excised; it is so firm that she can take hold of it and blow it.

May 5th.—The nostrils having now contracted to about one-half their proper size, I proceeded to enlarge them. Incisions were made forward towards the point of the nose, forming in each nostril a small narrow flap, which was not wholly cut away, but left attached anteriorly. A long needle having been passed through both, above the columna, a ligature was twisted round it, also above the columna, and the flaps were thus drawn inwards to each other, and kept in apposition with the inside of the nose, previously made raw. Contraction will thus, according to Dieffenbach, be altogether prevented. In laying open the lower part of the nose it was observed, that there only existed a passage backward to the nares, and that the upper part of the nose is perfectly solid.

9th. — Adhesion of the little flaps having taken place, I wished to remedy the curvature downward of the columna, which had taken place in consequence of its thickening, and assuming a globular form. I therefore excised a small elliptical piece from its lower surface, and brought the edges together with two needles.

27th.—The result of the last paring has been satisfactory. The columna has ceased to curve downward, and the point of the nose is more elevated. The wound of the forehead is now healed to a point, (seven weeks after the operation) and would have been so sooner, but for a blow which it accidentally received. She never had the least constitutional disturbance, and has been attending to her ordinary avocations for the last month.

In conclusion I would only remark, that the operations for the restoration of the nose and lips when destroyed, have not received in this country the attention which they seem to merit. The covering from view such a disgusting deformity as a death's-head nose upon a living countenance would surely be meritorious, were the veil only a flat piece of skin: and the rhinoplastic operation certainly does not deserve the sneer with which it is treated by the author of a recent System of Surgery, whose reputation may unfortunately give too great currency to his opinion. I may add that my patient herself, and all her friends, are remarkably well pleased with the change which has been wrought on her; and that she is no longer troubled with the frontal headaches, or any inflammation of the eyes.

CASE OF SPASMODIC CHOLERA (?).

To the Editor of the Medical Gazette.

Sir,

I am not aware that any form of cholera has of late been prevalent. The following case may prove interesting, as showing that although this dreadful malady has ceased to exist as an epidemic, yet we may still occasionally find individual cases in which the symptoms are not far removed from spasmodic cholera in its worst form. Should you deem it worth inserting in your valuable journal, you will oblige, sir,

Your obedient humble servant,

Sam. J. Jeaffreson, M.D.

3, Norfolk street, Strand, May 30, 1836.

10 A.M.—A warehouseman, of about 50 years of age, with skin every where as cold as marble. Pulse too small to be counted; tongue furred. Voice scarcely perceptible; countenance cadaverous; bowels purged twelve or thirteen times within the last twelve hours; the dejections having exactly the appearance of rice macerated in boiling water, and without the slightest tinge of bile. The evacuations not copious, and I could not ascertain what had been their appearance at the first commencement of the attack. Has passed no urine; has only once vomited. *Frequent* and *painful* cramps, more especially of the legs. The abdomen, to the touch, felt contracted and hard, from muscular tension, but in no part tender on pressure. No distention of the bladder perceptible.

I learnt that he was a man of good general health, and temperate habits; but that his bowels were usually confined for some days together, and would then become loose for several days. Last night he ate a few radishes for his supper, which is the only cause he can suggest for his complaint.

A friend who had seen the patient about half an hour before myself, says that he was then of a very blue aspect. His face and hands were somewhat livid when I saw him, but not amounting to blue. My friend had ordered him—

℞ Calomel, gr. iij.; Opii, gr. iss. statim sum.; et ℞ Hydrarg. Submur. ℈j.; Opii, gr. j. M. ft. pil. xx. æquales quarum sumat j. quâq. semihorâ.

I recommended his repeating the pills with the following draught:—

℞ Sp. Ammon. Aromat. ʒss.; Sp. Ætheris Sulph. c. ♏xx.; Træ. Cardamom. c. ʒj.; Mist. Camphoræ, ℥xj. M. ft. haustus quâq. semihorâ, cum pil. (ut antea) sumend.

Mustard cataplasms to the calves of the legs, with hot water bottles to the feet, and warm sand bags to the abdomen, constituted the rest of his treatment. I also ordered a starch enema, with a drachm of laudanum, to be used, if the purging did not abate in the course of two hours.

7. *Vespere.*—Skin warm; pulse 100, very small, but steady; pills have only acted three times, and very slightly; dejections of the same nature as before. Cramps less frequent and severe; has passed urine; feels thirsty; tongue furred; expresses himself as "much better," and only complains "of feeling weak." The enema was not used.

Rep. Pil. et Haust. cui adde Liq. Opii sedativ. ♏vi. quâq. secundâ horâ.

2d.—Has had some comfortable sleep; pills have only acted once; evacuation of much the same appearance as heretofore, but coloured by bile. Has had hardly any return of cramps, and no reappearance of collapse.

Rep. Pil. et Haust. ter die tantummodo. To have some beef-tea.

Vespere.—Continues to improve.

On the 3d he had three motions from the bowels, containing feculent matter, and expressed himself as feeling nearly well: on the 4th he resumed his occupations, and has continued perfectly well up to the present time.

FEES FOR MEDICAL CERTIFICATES, IN EFFECTING POLICIES OF LIFE ASSURANCE.

To the Editor of the Medical Gazette.

Sir,

In the Gazette of the 21st instant, received this day, I find a very spirited leading article on the subject of "Life Insurance Policy Fees;" together with certain resolutions of the Glasgow faculty, well worthy of imitation by all grades of the profession in this country. The subject has been frequently discussed, I see, in the Gazette; the un-

fairness of the gratuitous certificate system has been fully shown, and the apathy of medical men equally demonstrated; otherwise I should have seen some *declaration* made by the metropolitan practitioners, in which we provincials would have readily joined. No such united effort has been made; and until it is, I beg leave to submit to your readers the plan I have acted upon for some years, in these matters; and which I advise them, for *self-protection*, to follow. It was attended with a little difficulty at first, but this was easily overcome; and I can assure you that the parties interested pay very readily for the service performed, and seem rather to value it more since they have been required to hand over the fee, than when it was done gratuitously.

I am frequently referred to, as a general practitioner, to furnish answers to a long string of questions respecting the state of health of my patients, by *three* parties. 1st, By the *officers* for whom I act as medical referee; for which, of course, I am *paid* the usual fee. 2dly, By the *parties themselves* who propose to insure their lives in offices for which I do not act as referee. 3dly, By persons who propose to insure the lives of *others*, as security for leasehold property, annuities, and so on. The payment by the two last classes was formerly of this sort:—"Sir, I am very much obliged to you, and any thing I can do to acknowledge the favour shall be readily effected." You made a polite bow in reply, and the parties disappeared. I began to reflect that all this was very foolish—that I was throwing away my time, and trouble, and professional experience, for no definitive object; that if I wanted any advice of my attorney, I was sure to be charged the usual ternary fraction of the pound sterling; and I came to the fixed resolution of making them *all* pay for the work done—that is, one or the other of the parties interested. I have put many pounds a year into my pocket by this resolution; and I do verily believe that I have *not lost a single patient* by doing so. When a *confidential* letter is sent to me from an agent of any other than my own offices, to be forwarded to town, or from any other person, I send it back again, with a polite note, to the effect, that *having laid down a general rule*, I cannot answer the queries proposed until I know by whom I may be paid my fee of *half a guinea* for the certificate, whether the insurance is effected or not. The agent communicates with the parties, and by the one or the other I am always paid. After a little time I had no need to send back the "confidential" letter: it was accompanied by the fee, or by a promise to pay it. They all know that they cannot get a certificate without it; and if it is their desire to insure, they will not be deterred by the medical fee, which I have fixed at 10*s.* 6*d.*—I am, sir,

Your constant reader,

Σ.

Truro, May 25, 1836.

LIFE ASSURANCE POLICIES.

REMUNERATION OF MEDICAL REFEREES.

To the Editor of the Medical Gazette.

Sir,

As you are once more engaged, in the last number of your journal, in advocating the right of the medical referee to receive a fee from the Insurance Office, I shall trouble you with a case which has recently occurred to myself, and with the name of the office concerned: and I do this the more readily because the case is peculiarly free from all imputation of private interest, both on the part of myself, and my patient whose life was insured.

The low rates of the Scottish Union Insurance Company (449, West Strand) had tempted some parties, in March last, to transfer to them an insurance from another office. It was necessary to continue the lives which had previously existed in the policy. These lives had no pecuniary interest whatever in the transaction, though the insurers doubtless sought for saving in their annual payments, and, I suppose, the Scottish Union Insurance Office intended to get an increase of profitable business transferred to themselves, on terms which they at least must consider to be advantageous. My friend continued his life to oblige all parties,—but a searching examination of health is not always pleasing, and particularly to a bachelor as he advances in years, and I considered my position in communicating with the office one of delicacy, which would not have been confided to a mere travelling *attaché* of the office. On former renewals of the lease, a fee had always been transmitted to the medical referee, and I cannot see any

reason why those who court business, and get it away from other hands, should be exonerated from paying a similar compliment to myself on the present occasion.—I am, sir,

Your obedient servant,

M.D.

May 24, 1836.

[The writer has given us his name and address.—Ed. Gaz.]

MEDICAL GAZETTE.

Saturday, June 4, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

Cicero.

ALIMENT AND POPULATION.

In our last number but one we alluded to the discussions which have lately taken place in various quarters as to the best means of maintaining a balance between population and the means of procuring sustenance. An important question it certainly is—for the bare idea of the number of human beings on the face of the earth exceeding what the available supplies of aliment are capable of supporting, conjures up a picture of no very agreeable kind. There are clearly two, and only two, kinds of expedient capable of being acted upon in such an emergency—namely, diminishing the population, or increasing the production of food. Some, indeed, have suggested a combination of the two—by which we were prepared to find the idea gravely revived of slaughtering the children for the sustenance of the parents, in the manner so happily suggested by Swift for diminishing poverty and starvation in Ireland; nevertheless we were mistaken in this, and found that the proposal was limited to the imposition of a "moral" and "healthful" check to the number of births—and to turning our attention to the "western world" for indefinite supplies of food.

That on the great scale any such disturbance of the equilibrium between the fruits of the earth and the number of beings with whom God replenishes it, exists, or is to be apprehended, we have never been able to make out, from the statements even of the hungriest of the economists; but that partial deficiencies of food, amounting even to destructive famines, may arise, is too well known to be denied, and too grave an evil to be disregarded.

The chief advantage, as it appears to us, which is likely to accrue from such discussions as the present, is that of ascertaining in what manner, and by what particular means, such visitations may be most effectually guarded against—or mitigated if they actually occur. We apprehend, indeed, that, in this country at least, too little consideration has been paid to the sources from which extra supplies of aliment may be procured in cases of emergency,—and to this it may not be uninteresting or unimportant briefly to direct attention.

Our distinguished countryman, M. Edwards of Paris, recently published some statistical researches on the employment of gelatine as an article of diet, from which it appears that our French neighbours are much beforehand with us in the theoretical investigation of this subject; nor, indeed, are they less so in its practical application—numerous establishments having been formed, in various parts of the country, at which large quantities of excellent soup have been made from materials which would otherwise have been nearly or altogether useless. Some, indeed, have endeavoured to throw discredit on the plan, and have expressed doubts as to the nutritive properties of the gelatine thus procured; but the evidence collected by M. Edwards*, in our opinion, sets the question at rest. This distin-

* Récherches statistiques sur l'emploi de la gelatine comme substance alimentaire.

guished physiologist has proved by experiments on the lower animals, by observations on man, and by extensive statistical investigations, that the gelatine obtained by any of the recognized processes from animal fibre and from bone is highly nutritious, and only requires the addition of a limited portion of other ingredients to render it agreeable to the taste and grateful to the stomach.

The method by which the gelatine is extracted from bones and the sinewy portions of meat, through the medium of heat and moisture, has long been known; and, improved according to the system adopted by M. Papin, is capable of forcing these intractable materials to yield a large portion of their nutritive principle. For this purpose a very elevated temperature is not necessary; and, indeed, one but little above the boiling point will be found to suffice. The process, however, we may remark, requires considerable care, as without this the *cooking* may be spoilt, and the soup rendered more or less ammoniacal. This was the case some time ago, at the Hôtel Dieu, in Paris; and the failure, or at least imperfection of the process, which was owing to the carelessness of those employed, was unfairly attributed to some defect in the principle itself. The plan employed in France is to use the solution of gelatine, procured from meat or bones for what, we believe, in the technical language of the kitchen, is called "stock." This is made into soup by the employment of one-fourth part of the meat which it is customary to employ in making soup with water merely. The addition of the small proportion of meat just mentioned is no doubt partly to communicate additional strength to the product, but is of more importance in rendering it sufficiently *aromatisée*. However, although meat in small quantity accomplishes this end most efficiently, yet it is not absolutely necessary, as occasionally a small portion of lard has been substituted with the best results.

If any one be disposed to think lightly of the benefits to humanity which such contrivances are capable of affording, we recommend to him to peruse the accounts which have been published of the transactions at Rheims a few years ago, where, after one of those civil commotions which disturbed the manufacturing towns of France, an immense number of unemployed operatives were reduced to the greatest misery, and to the most imminent danger of starvation. The municipal authorities, at the instigation of M. Commesny, established a soup manufactory. Strange to say, no complaint was heard even from those who were relieved; not only were the cravings of nature appeased, but the political phrensy of the people was subdued. As M. Edwards remarks, "On conçoit aussi qu'une nourriture aussi substantielle et savoureuse devait sauver la population souffrante, et la rendre satisfaite et paisible."

But besides the different forms of ebullition or digestion more or less calculated to obtain gelatine, another and very important method may be used to obtain it from bones. Ebullition, indeed, it is well known, will separate a certain portion from the hardest substances; and, accordingly, every cook knows the use of bones in making soup; yet does a very large portion of animal matter remain behind: now this may be separated from the earthy materials, or rather, the latter may be separated from the former, by means of acids. By this contrivance a very pure jelly is obtained, and one which has long been much used in France, particularly by the *restaurateurs*.

It is a very important principle, and one constantly to be kept in mind, that no simple elementary substance is capable by itself of sustaining the vigour of the animal body. Variety is not less neces-

sary to the taste than a certain degree of admixture is to efficient nutrition. Our readers will remember the experiment of Magendie, who, having fed rabbits on white sugar and distilled water, the creatures became cachectic, and the cornea of the eye ulcerated, suffering the humours of that organ to escape. This is also in keeping with the observations of Dr. Prout, who has well illustrated the principle (that combination within certain limits is necessary to nourishment) by quoting the example of milk, perhaps the only product of nature specifically intended for the purpose of aliment. Now this contains a variety of ingredients, particularly sugar, oil, and albumen. But experience has shewn, that though it be essential that a certain degree of variety in the constituents of nourishment should exist, yet but little is required to give to a good "stock" all that is necessary to render it sufficiently *aromatisé*.

Upon the whole, we cannot help thinking that if some of our Malthusean economists, instead of indulging in gloomy forebodings, were to turn the attention of the public to the best means of compelling the various substances around us to yield up the whole of their nutritive treasures, they would be much more usefully employed than they are at present. Bread has been made from the most intractable timber, and soup from the hardest bones; why, then, should we despond? True, the processes are not the simplest in the world, particularly with respect to the former; but herein is matter on which to exercise their ingenuity. To manufacture good and wholesome bread from wood, appears at first sight but a visionary proposal, and yet Dr. Authenreith has shewn that it may be accomplished; and the simplification of the requisite manipulation would certainly be a mighty attainment, even in these days of gigantic improvement. We have no doubt that a ready means of converting a tough sapling into the "staff of life," would go farther towards immortalizing the discoverer, even than the greatest among the triumphs of modern science. Increasing the supplies of aliment would also, it is presumed, prove quite as "moral and healthful" an antidote to over-population as any "preventive check" hitherto suggested.

THE INFLUENZA.

An epidemic catarrh, which it is the fashion to call influenza, has been, and is still, very prevalent in London. It consists in a slight inflammatory affection of the mucous membrane of the throat and air-passages, with coryza, painful deglutition, and cough. These local symptoms are generally accompanied by headache, and pain in the limbs, but more particularly by lassitude and depression, which in many are out of all proportion to the other symptoms. The complaint is evidently dependent upon the peculiar state of atmosphere engendered by a hot sun and cold easterly winds. Nothing more is required in the great majority of cases, than diaphoretics, gentle laxatives, and a few days' nursing.

CLINICAL LECTURE,

Delivered at the Westminster Hospital, Saturday, May 21, 1836,

By Mr. Guthrie.

SURGICAL ANECDOTES OF THE PENINSULAR WAR.

Contracted cicatrices — Amputation — Abandonment of the tourniquet — Improved mode of making the incision — Fallacy of the "compensation" principle — Inutility of flogging — Battle of Roliça — Original letter from the Duke of Wellington — Characters of Colonel Lake and Sir E. Packenham.

Three weeks ago you saw me relieve the neck of a poor little girl, 3 years of age, who had been burned, and whose lower lip was adhering to her breast. I removed the cicatrix; her head is kept up by a proper back-board and head-piece; and she will get well with as little deformity as can be avoided. These cases are

not common, but coincidences in surgery are not infrequent; and I have another of a similar kind at the bend of the arm, which prevents its being straightened. This girl is 13 years of age, and being the daughter of a person who has seen better days, I have put her under the care of the housekeeper of the Ophthalmic Hospital, and all of you who choose may be present at the operation on Monday.

You saw me a few weeks ago cut off the thigh of a child, 7 years of age, by the usual circular incisions. Poor Tommy! I tried very hard for weeks to save his leg, and even run it so close that I feared I was too late to save his life. The operation did however succeed; but he had a narrow escape. The child whose thigh I have just removed is 11 years old; the disease ulceration of the cartilages of the knee-joint, which he has had for months, and his mother brought him to me last week for the purpose of having it amputated. I did this by the flap operation on each side, so that you might have an opportunity of seeing the different methods of operating; for instances of the kind occur much too infrequently in our hospitals for the advantage of instruction, although quite frequently enough for the sake of the sufferers.

It is a proof of the advance surgery is continually making, for one operation is not performed now where three were formerly; and in many cases in which they were done commonly thirty years ago, they are not now even thought of. Sir Astley Cooper observed to me the other day, that the last war had given the greatest impulse to surgery it had ever received in this country; and there can be no doubt of the fact. Those who remained at home were obliged to labour and increase their knowledge, that they might be enabled to teach; and those who went abroad were obliged to learn, because they could not help it.

I have been the historian, or the recorder, of the Surgery of the Peninsular part of the War; and whatever deficiencies there may be in the record shall be completed. You have lately and on this day seen four of the improvements thus made.

1. I did not use a tourniquet, the screwing and unscrewing of which always creates some difficulty and annoyance. I never do when I have good assistants, but you must have recourse to it when alone, or when they are ignorant. A very moderate and simple pressure suffices to stop the flow of blood through the largest artery; and gentlemen who would have trembled forty years ago at cutting across the femoral or axillary arteries without an infinity of preparation, would now, if they were alive, cut either without the slightest hesitation. I never use one, to teach you confidence. I learned to do without a tourniquet from necessity, the mother it is said of invention, on the field of Vimiera, and I finally abandoned it at Albuhera (I beg, gentlemen, you will always spell Albuhera, when you have occasion to do so, with an *h*; you might as well write London without a *d*.) It was only, however, at the last battle of Toulouse the surgery of the British army approached perfection. There were even there one or two mistakes. Another campaign in the South of France would have made us perfect.

2. I always divide the skin and fascia by the first circular incision, down to the muscles; they will then retract with very little assistance, instead of the useless and painful dissection of the skin from the fascia, which formerly took place. This practice is, I believe, now universal.

3. You will find in books, that in dividing the muscles, you are to take particular care that you cut the long and unattached ones of a different length from those which are attached to the thigh bone, and each muscle according to its powers of retraction; so that they must be cut long and short, and of different lengths, something like the parts composing the compensation pendulum of a clock. I have no objection to all this; but I never saw it done, and have long since given up all thoughts of doing it myself; and why?—because I have seen scores of amputations done by all sorts of hackers, hewers, and bunglers, and I invariably found that no matter how they were hacked or hewed, whether the muscles were cut according to compensation principles or not, they always made capital stumps, when another rule was observed, viz. to cut the bone short, that is, to have it well covered by these same muscles and integuments. It is the golden rule of amputation, and the quicker you can do every thing else and come to that, the better for your patient. In the flap amputation, where all the parts are divided as nearly as possible at once, no attention can be paid to compensation cutting, and there is, therefore, no waste of time. Remember, therefore, always to cut your bone short—the stump may by this be one inch shorter than you could otherwise make it; but woe there is to the man, to the end of whose bone the cicatrix adheres, he is unhappy for the rest of his life—he will never forget his doctor.

4. Saw your bone perpendicularly, and not slantingly, which prevents its splintering.

I read, gentlemen, all the anecdotes, histories, and criticisms, which appear on the subject of the Peninsular war, with

great interest; sometimes I cannot help smiling at the want of accuracy which occurs as to time and place among the critics, and I have been half inclined to correct them, but doctors had better stick to their own work, and I shall only now and then give you a personal anecdote of some of my old friends, and after the lapse of so much time I may do it perhaps without the charge of vanity or presumption. You shall now have the first.

The action of Roliça (by the error of a copying clerk in Lord Bathurst's office miswritten *Roleia*, and absurdly continued) was an eventful day for many—for none more than for George Lake, the lieutenant-colonel commanding the 29th regiment. He fell at the moment of victory, and, as far as I know, no one has thought it right to record his worth. It is true an attempt has been made by Mr. Hamilton, in Cyril Thornton, to pourtray him as Colonel Grimshaw, and, however estimable he has made him, he was still a greater and a better man. In India he was early distinguished when serving with his father, the first Lord Lake, by his cool and determined bravery, his amenity of manners, his calm and gentlemanlike deportment. He joined the 29th regiment immediately before their embarkation, in 1807, under General Spencer, for Ceuta, and soon won the hearts of all. The officers adored, the soldiers revered, and there are few who would not have laid down their lives for him. The evening before the affair of Roliça, there was every reason to believe the regiment would be among the first troops engaged the next morning, and there were two bad subjects under sentence of a court-martial for petty plundering. It is to this hour the bane of the British army, that there is great difficulty in getting rid of men, upon whom neither precept, prayers, nor punishment, have any effect. There were at that time several in the regiment who had received from four to eight thousand lashes; they were incorrigible on some points, but most gallant soldiers. I think I see one of them now, poor Needham, a grenadier of the finest order of men, a fellow of the kindest heart, an excellent soldier, but he could not resist rum. In America, in summer or in winter—for heat or cold were nothing to him, he would swim the harbour of Halifax on a stormy night, and return to his post with as many bladders of rum tied round his neck as he could get money to buy. Of course every body got drunk, and poor Needham was detected and flogged; he never disputed the justice of his sentence, but as readily admitted that he could not possibly refrain from doing the same thing again. It was of no use flogging him; nevertheless, I saw him get the last of, I think, 18,000 lashes, without their being of the slightest use to him in the way of reformation. Indeed, I have seen many scores of thousands of lashes given, without being aware of any benefit being derived from them. It is of little consequence whether a man receives 100 or 300 lashes; my own opinion is, that he should receive neither: a brand is not affixed to a felon, and it should not be to a soldier. Nevertheless the British army must be occasionally flogged: it is mercy to the soldier to do it, and no discipline could be maintained before the enemy without it. In Great Britain, soldiers should be treated like wayward children, and no man, in my humble opinion, should receive more than two dozen lashes, and that on his bum, in the way schoolboys of 16 sometimes get it; and then, with their coats turned, they may be made to do their duty the same day, the derision of all the children in the town. An old culprit cares nothing whether he gets one hundred or five hundred lashes. I remember one of these gentlemen (Mr. Dennis Reardon by name), who, for some misdemeanor, was sentenced to receive 500 lashes. This the general commanding was pleased to commute for fourteen days' garrison black strap; that is, to work (or rather idle) fourteen days at the King's works, without 7d. a day: but Mr. Dennis declined the favour, and took the 500 lashes. Poor Needham died in the element he had so often braved with impunity. He was carried off the forecastle of a transport by a heavy sea, in the Bay of Biscay, and was long seen buffetting the waves in vain, and without hope or prospect of relief. He was the *beau ideal* of a grenadier.

Colonel Lake, when he formed his regiment in the evening for the punishment of the two culprits, knew full well that every man was satisfied they deserved it, but he did not say that. He spoke to the hearts of his soldiers; he told them he flogged these men not alone because they deserved it, but that he might deprive them of the honour of going into action with their comrades in the morning, and that he might not prevent the guard who was stationed over them from participating in it. The regiment was in much too high a state of discipline to admit of a word being said, but they were repeated all the evening from mouth to mouth; and the poor fellows who were flogged declared to me they would willingly, on their knees at his feet if they dared, have begged, as the greatest favour he could bestow, to be allowed to run the risk of being shot first, with the certainty of being flogged afterwards if they escaped.

Early the next day we came up with the French, drawn up in line, with the

village of Columbeira on the rear of their left, the heights of Roliça Columbeira, or Zambugeira, as they are indifferently called, behind, and covering the main road which turned the right of their position. They were the two battalions of the French 70th regiment, and the 29th and 82d advanced in line to meet them. A line of two deep, either for attack or defence, is peculiar to the British; all other nations attack in column, but British disciplined troops can do what none others can do, and no day of ordinary parade could appear more beautiful than this. We advanced in this manner in perfect order and in ordinary time with shouldered arms, until the red tufts, nay, the very faces, of the French line could be distinguished. Lake and his horse seemed both to be prancing with delight. I was told my place, on such occasions, was seven paces in the rear of the colours (we then knew no better), and he seemed to be about as much in front. At this moment he turned round, calling out, "Gentlemen, display the colours." The colours flew, the horse and he had another prance, when he turned again and addressed the line:—"Soldiers, I shall remain in front of you, and remember that the bayonet is the only weapon for a British soldier." The French at this instant retired, and the right of the 29th meeting the road, broke into sections and following through the village of Columbeira. One field separates the last houses of the village from the foot of the heights which rise almost perpendicularly above it. A narrow ravine seemed the only accessible part, and up this, Lake, without hesitation, led his grenadiers on horseback. The whole regiment followed, with unexampled devotion and heroism, and gained the summit; but not without the loss of 300 men in the desperate conflict, which took place almost hand to hand, in the olive grove half way up the hill. Broken and overpowered by numbers, Lake fell, and his soldiers would have been driven down, if the 9th regiment had not rushed up with equal ardour, led by a no less gallant soldier, Colonel Stewart. The two regiments formed on the crown of the hills, supported on their right by the 5th, which had been less opposed, and the French retired, finding that their right was by this time turned. Colonel Lake, on horseback, on the top of the hill, seemed to have a charmed life. One French officer, of the name of Bellegarde, said afterwards, that he had fired seven shots at him. Once he seemed to stagger as if hit, but it was only at the seventh shot he fell. It is probable he was right, for he was wounded in the back of the neck slightly; but the ball which killed him passed quite through from side to side, beneath the arms. I think he must have fallen dead. Will you permit me to record the end of as brave, although an humbler soldier? The sergeant-major, Richards, seeing his colonel fall, stood over him like another Ajax, until he himself fell wounded in thirteen places by shot and bayonet. I gave him some water in his dying moments, and his last words were, "I should have died happy, if our gallant colonel had been spared;" words that were reiterated by almost every wounded man.

Colonel Stewart, who led the 9th, fell also. He was struck by a musket-ball in the belly, which lodged; I saw him a short time afterwards lying under a myrtle-bush, and he beckoned me to come to him. "Our friend Brown," said he, meaning the surgeon of the 9th, "gives me no hope, pray look at me." I did so, and he saw I had none to give either. He thanked me, and begged he might not detain me from others to whom I could give relief. He died, poor fellow! a few hours after, with the resignation of a christian, and the firmness of a soldier.

I have been led to be thus garrulous, from having obtained, only the day before yesterday, a copy of the letter addressed by the Duke of Wellington, then Sir A. Wellesley, to Sir Richard Borough, who had married Colonel Lake's sister. It is the letter of a soldier, announcing and regretting the loss of another, for whom he had a firm and affectionate regard. I cannot resist reading it to you.

Lieutenant-General the Hon. Sir A. Wellesley, K. B., to R. Borough, Esq.

"Lourinha, 18th August, 1808.

"My dear Borough,

"I do not recollect the occasion upon which I have written with more pain to myself, than I do at present to communicate to you the death of your gallant brother-in-law. He fell in the attack of a pass in the mountains, at the head of his regiment, the admiration of the whole army; and there is nothing to be regretted in his death, excepting the untimely moment at which it has afflicted his family, and has deprived the public of the services of an officer who would have been an ornament to his profession, and an honor to his country.

"It may at the moment increase the regret of those who lose a near and dear relation, to learn that he deserved and enjoyed the respect and affections of the world at large, and particularly of the profession to which he belonged; but I am convinced, that however acute may be the sensations which it may at first occasion, it must in the end be satisfactory

to the family of such a man as Colonel Lake, to know that he was respected and loved by the whole army, and that he fell, alas! with many others, in the achievement of one of the most heroic actions that have been performed by the British army. I cannot desire to be remembered to Mrs. Borough, but I beg you to believe me, &c.

"ARTHUR WELLESLEY.

"To R. Borough, Esq."

I know no man of those who are no more, who can be compared with Lake, except Sir E. Pakenham. I have always a pleasure in bringing them to my recollection. I can fancy them as I last saw them before me: alike noble and generous in their natures, as incapable of fear as of doing a bad action, they were never so happy as in doing a good one: equally devoted to the fair sex, they were in all situations when they called upon them, their willing guardians and protectors: they were the Bayards of the British army. Sir E. Pakenham was never so animated as before the enemy: the sound of a shot seemed to give him the greatest delight; he snorted at it like a racer on the course; and, like Lake, he was always the first in danger, and the last out of it. Careless of themselves, considerate for others, wounded on several occasions, they seemed to forget that such a thing could again occur. His regard for the Duke of Wellington was unbounded. When the British army retired before Marshal Marmont, from Fuente Guinaldo, and maintained its ground on the heights near the Convent of Sacca Parte, in front of Sabugal, he thought the Duke, he told me, was needlessly exposing himself, and prevailed upon him to fall back a little. We had scarcely done so when one cannon-shot killed an officer of the 23d Fusiliers, close to him, and another struck the ground at his feet. The Duke merely turned and said, "Pakenham, this is what you call taking care of yourself." In his illness at Madrid, his anxiety for the Duke and the army at Burgos prevented his recovery. I was the chief of my own branch of that army, amounting to more than 30,000 men, under my Lord Hill; and for ourselves we had no apprehension. We could have beaten Marshal Soult any day in four hours, who had about our own numbers, but we flattered ourselves of inferior troops; there was, however, no advantage to be gained by beating him at Madrid, if our communication was cut off at Salamanca. He only began to recover in the retreat, when there was nothing to think of but fighting.

At a later period, in the fierce conflicts in front of Vittoria, he lost a friend, an officer of his old regiment the Fusiliers, Lieut.-Col. Despard, who was killed by a ball which lodged in his back-bone. His widow arrived some time afterwards at St. Ander, with four children, from Lisbon, alike wanting in friends, and, in a foreign country, of means. Sir E. Pakenham sent me a hundred pounds for her use, desiring me to say it came from a fund in the regiment, to which she was entitled without any sort of favour, on account of her children. Spare, he said, at all hazards her feelings; they will be greatly hurt if it is offered as a present from me, and will be refused; and be assured you will not be telling an untruth, for I consider every farthing I have to spare as a fund entirely at the service of every widow and orphan of that regiment. She does not to this hour know that the money came from Sir E. Pakenham. One of these four children was his godson. He has been now near fifteen years a lieutenant, and returned two years ago from the West Indies, his health ruined, his constitution almost destroyed. He has no prospect but a return there in autumn, unless the paternal kindness of the Commander-in-Chief shall relieve him from a fate differing from his father's only in being more untimely and inglorious. England, magnificent in her wealth, splendid in her extravagancies, deals only with her brave defenders with a niggard hand; to all others she is just, if she cannot always be generous.

I parted with Sir E. Pakenham at Lord Dartmouth's door, at the corner of St. James's Square, the day he started for his last command. On shaking hands, I said, "We part now for the last time; I shall never see you again." He asked, "Why say so; what makes you a prophet of evil?" I replied, "I know you so well, that I feel confident you will not be able to hear the first shots fired without being in the affray; and you will be killed, I fear, foolishly." He knew the object I had in saying this, the feeling that dictated it, and, in pressing my hand more warmly, he said, "That I shall fall, is possible; but if I do, you even shall say I fell as a general, commanding in chief, ought to do." When his aide-de-camp, Colonel Wyly, returned to England, he dined with me alone, that we might talk over the last acts of the life of our departed friend. In the front of a regiment which appeared to be failing in its duty, on horseback, with his hat off, he received his first wound. Feeling that he could not sit his horse, he endeavoured to dismount. In the act of lifting his right leg over the saddle, a second shot struck him a little above the groin, and, it was afterwards found, had divided the great iliac

artery. He fell dead, and he kept his word.

We will, gentlemen, at some future day, continue our observations on the advance of surgery in the war of the Peninsula.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Pathological and Surgical Observations relating to Injuries of the Spinal Cord. By Sir Benjamin C. Brodie, Bart., F.R.S., &c.

The paper of which the above is the title is an exceedingly elaborate and valuable essay, of which it is impossible for us to give more than an outline.

Sir Benjamin began by observing, that as the brain and spinal cord were analogous in anatomical structure, it was to be supposed that they would bear a resemblance in the effects produced upon them by injuries; and this circumstance seems to have led to writers generally limiting their observations almost entirely to the head, leaving the affections of the spine to follow as matter of inference. The object of the present paper is to supply in some degree the deficiency thus produced.

Wounds penetrating the spinal cord are generally fatal within a very short period; and Sir Benjamin professed to have nothing new to offer regarding them, but referred to the work of M. Ollivier for some interesting experiments connected with the subject.

The other kinds of injury were arranged as follows:—1. Fractures of the vertebræ, without displacement of the fractured surfaces. 2. Fracture with depression or displacement of bone, so as to diminish the diameter of the spinal canal, and occasion pressure on the cord. 3. Fractures complicated with dislocation. 4. Dislocations not complicated with fracture. 5. Extravasations of blood on the surface of the membranes of the spinal cord. 6. A clot of blood extravasated within the substance of the spinal cord. 7. Laceration of the spinal cord and its membranes; and this may be partial or complete, or modified in various other respects. 8. The minute organization of the spinal cord may be injured from a blow, even where there is neither fracture nor dislocation. In such cases, the cord, if examined at an early period, is found to be softened in the centre,—and this change at a later period becomes perceptible in the whole diameter of the cord—occupying one, two, or more inches—and, in more advanced cases, the complete dissolution of the cord may have been accomplished.

Sir Benjamin alluded to the remarks which he made in his paper on Injuries of the Brain, in the 14th volume of the Transactions, and shewed that the same reasoning applies to the spinal cord, with this difference, that the symptoms during life are more severe, and the changes found after death more conspicuous: a circumstance which the author attributed in great measure to this—that the brain does, and the spinal cord does not, completely fill its bony investment,—by which arrangement of course the latter is more apt to suffer from violence applied to it.

The symptoms accompanying an injury of the spine may be referred to—1. concussion; 2. laceration; 3. pressure; 4. inflammation; and 5. other organs not originally affected may suffer secondarily.

Paralysis.—Paralysis takes place below the injury, and may be partial or complete, according to the extent of injury. The paralysis also varies in other respects, particularly in cases of concussion. Thus the patient may be able to use the limbs in the recumbent posture, though he cannot stand, &c. Sometimes the paralysis, at first complete, gradually diminishes; sometimes the reverse happens. In injuries of the spine the lower limbs are frequently paralysed, without the upper being affected; whereas in caries of the cervical vertebræ, the upper limbs are occasionally paralysed for weeks or months before the lower limbs participate in the loss of power. Sir Benjamin, however, has seen a case in which a contusion of the middle dorsal vertebra was followed by palsy of the upper extremities, and Mr. Stafford has related a similar case.

Paralysis from an injury of the spine is of course very formidable, but the author stated, nevertheless, that he had known many instances in which the parties recovered to a greater or less extent; and numerous cases were referred to in illustration.

Spasms.—Spasmodic affections sometimes occur after injuries of the spine; Sir Benjamin thinks that they depend on pressure, having never seen them where this was not found to have existed.

Sensation.—If an injury be inflicted in the region of the sixth or seventh cervical vertebra, the destruction of sensibility is complete in the lower limbs and trunk, but only partial in the upper extremities; but if the injury be above these, the head only retains its sensibility, and the patient lives for a time quite unconscious of the existence of his limbs or body.

The lesions of sensibility are not less various than those of motion; sometimes the loss is complete, sometimes partial; sometimes the patient experiences some unusual sensation. Sometimes the loss of sensibility is complete in the first in-

stance, and gradually subsides; in other instances just the reverse takes place.

Respiration.—Division or laceration of the cord above the origin of the phrenic nerves causes immediate death, owing to the muscles of respiration no longer receiving nervous influence. Life, however, may be prolonged for a limited period, by artificial respiration.

Pressure at the upper part of the cord from dislocation, is usually, but not invariably, followed by speedy death.

When the injury takes place below the origin of the phrenic nerve, in the neck or upper part of the back, the diaphragm continues to act, the other respiratory muscles being paralysed, and in this case the act of expiration is but imperfectly performed. The lower down in the spine the injury is inflicted, the less is respiration affected; nevertheless, if the injury be high enough to involve the nerves going to the abdominal muscles, these, by becoming paralysed, render expiration less energetic.

Priapism is a very frequent symptom in injuries of the spine; but Sir Benjamin has never known it occur, except in combination with paralysis. It is independent of any sensibility of the parts, and may result from the irritation of introducing the catheter, though the patient be perfectly unaware of the operation.

Urinary Organs.—The bladder is paralysed, and the patient is wholly or partially unconscious of its distention. This symptom is one which supervenes at an early period of the injury, and in fatal cases, remains throughout.

It is not uncommon, immediately after the accident, to have a diminution in the quantity of urine, particularly if respiration be much impaired. Sometimes the urine first secreted is acid, with an offensive smell, but without mucus; sometimes it deposits a yellow amorphous sediment; but the most common phenomenon is for the urine to be turbid, with an ammoniacal odour, and copious deposit of alkaline mucus. In this last the phosphate of lime is after a time perceptible: there is a tinge of blood, and afterwards an admixture of this in a state of coagulation. These symptoms generally come on in a few days, sometimes they continue for weeks or months; sometimes they subside, and the urine again becomes acid. Occasionally the acid and alkaline states of the secretion alternate.

The mucous membrane lining the bladder and urinary passages frequently becomes inflamed.

Digestive Organs.—The bowels are torpid, and in fatal cases generally tympanitic; the intestinal contents are voided unconsciously. Where the injury is in the cervical spine, there is often a disposition to vomit;—such cases are generally speedily fatal. The matters evacuated are often dark; but the circumstance on which this change of colour depends has not been ascertained.

Temperature.—Injury of the upper part of the spinal cord gives rise to a remarkable evolution of temperature; this has been ascertained by experiments on the lower animals, and the author has seen it in the human subject. In a patient at St. George's Hospital, with injury of the cervical vertebræ, the heat rose to 111°, at a time when the respirations did not exceed five or six in a minute. Some farther light is thrown on this subject by the result of Sir Benjamin's experiments, which shew that the development of heat is not in proportion to the consumption of oxygen.

Gangrene.—The vital powers of the parts below the injury are diminished, and one manifestation of this consists in the facility with which they run into gangrene, from slight pressure. Sloughs may even begin to form so early as the second day.

Sensorium.—Derangement of this takes place immediately after, and as a direct result of, the accident, chiefly in injuries of the cervical spine. They vary considerrably.

Other symptoms.—The force of the circulation is diminished, and a state of collapse induced. In severe cases the patient may die without any reaction; and even in less violent injuries the heart's action remains impaired, though the frequency may exceed the natural standard. The tongue becomes dry, brown, and then black. The blood, if drawn, usually exhibits a large loose coagulum, with little or no buff. These phenomena are connected, in the opinion of the author, with the process leading to softening of the cord, and which he holds to be essentially different from inflammation.

Inflammation of the investing membranes of the spinal cord is by no means so frequent as of the membranes of the brain.

In reviewing the effects produced by injuries of the spine, one remarkable fact alluded to by Sir Benjamin, was, that the effects are nearly the same, whether the cord be lacerated or compressed, or softened; and farther, the majority of the symptoms are the same, whatever part of the cord is injured. Indeed, there seems to be but one symptom, or set of symptoms, with regard to which much difference is manifested, according to the seat of the injury—viz. those connected with respiration, as has been stated above.

Examples of recovery from injuries of the spine which have appeared very formidable, are by no means uncommon.

Treatment.—If there be displacement of bone, ought any attempt to be made to reduce it? The circumstances warranting such proceeding, in regard to the neck, must be extremely rare; but in the lower part of the spine it may be successfully accomplished; in proof of which, Sir Benjamin referred to a patient, in whom Mr. Hardwicke, of Epsom, had reduced a displaced vertebra (the first lumbar), the return of the bone taking place, as was described, with a "jerk, or snap." In another case, where there was great displacement of the third and fourth lumbar vertebræ, Sir Benjamin partially effected their reduction.

Mr. Henry Cline proposed the application of the trephine, in cases of fracture of the spine, with depression; upon which operation Sir Benjamin made some remarks, to the effect, that the cases in which the question can be entertained are extremely rare; and even in them it must be doubtful whether harm may not result.

Complete repose is the most useful expedient in injuries of the spine: the patient is to be laid supine and horizontally on a mattress.

When inflammation comes on, the patient must be bled, as in other inflammations. But in the majority of cases the chief evil to be apprehended is softening,—a condition which Sir Benjamin thinks hurried on, rather than retarded, by venesection. Purgatives are required, and the author has found ammonia a very useful addition in facilitating their action. The catheter must be used, and the more frequently, the more disposition there is to alkaline urine and adhesive mucus: this last sometimes requires to be washed out with injections of tepid water.

We conclude this brief notice with a very important remark made by Sir Benjamin—namely, that much harm has resulted from the application, *to injuries of the spine*, of the principles and practice proper in *injuries of the head*.

ROYAL INSTITUTION.

Friday, May 27, 1836.

Unrolling of a Mummy.

If there be any thing with which the public have become perfectly familiar of late, thanks to these "piping times of peace," it is with the unrolling of mummies. It is as common as dining. Yet, as people, when they come to dine together, especially in public, hate long graces, and would feel mortally provoked if the chairman, instead of proceeding to business, were to waste their time in giving an account of dinners in general, and of what they were likely to find on the dishes before them in particular, when the covers should be removed, so was a large audience indignant on the present occasion; having assembled to feast (their eyes) on "a very fine mummy," and finding their appetite completely spoiled by the grand carver, Mr. Pettigrew, who persisted in holding forth for two hours on mummies generally, before he could be persuaded to let the prime dish be touched. The truth is, that Mr. P. got astride of his hobby-horse, and was anxious to shew before a large audience how well he could ride. Tristram Shandy, indeed, advises, that "as long as a man rides his hobby-horse peaceably and quietly along the king's highway, and neither compels you or me to get up behind him," he ought not to be interfered with. But Mr. P. wanted to take all the world up behind him, and grew angry at last because the spectators did not like the performance just as well as himself. For two mortal hours Mr. Pettigrew held forth on hieroglyphics, embalming, and mummification, telling his audience every thing that he had often told them before (we have ourselves heard him now on three occasions); and he would have gone on for another hour, that is to say, *till midnight*, had he not been positively refused a hearing: he was good-humouredly laughed into order by the assembly, which had too long listened to his irrelevant "observations" with patience.

The mummy, when it at length came to be examined, proved to be really a very fine one—fresh as if it had been manufactured only last week, and had never slept among the Pharaohs. It was purchased at the late Mr. Salt's sale. Among the company present to witness Mr. Pettigrew's performances, were Lord Prudhoe, Mr. Wilkinson, Professor Leyman, of Leyden, and a number of other connoisseurs in mummies: we fear they were not much compensated for their trouble in attending, for we believe there was nothing in any way remarkable discovered.

INDIAN HOSPITAL REPORTS.

Hospital Practice in the Hospital of the Second or Queen's Royal Regiment, Calcutta.

By Mr. Hunter.

Aneurism of the Aorta.

P. Cunningham, æt. 30, admitted 18th February, 1835. Pain in the left chest, dyspnœa, and cough; expectoration scanty and pituitous; apyrexia; pulse 88, full

and soft. Respiration high anteriorly; low sibilous rale under left clavicle.

V. S. ad ℥x. &c. &c.

19th.—Much relieved; pulse 80, soft. Respiration high, and bronchial under both clavicles. Puerile in left subscapular region. Obscure in right, occasionally with thin mucous rale. Percussion, no result.

Diagnosis. — Dry catarrh (Laennec). Again bled to 12 oz. on the 22d, and transferred to convalescent ward on the 2d of March. Respiration nearly natural, and pain gone.

April 8th.—Re-admitted from convalescent ward. Pain under upper portion of sternum, dyspnœa, and cough. Apyrexia; pulse 76, moderate. Respiration high over all the chest. Heart's sounds, impulse, and rhythm, natural.

10th.—Dyspnœa urgent all night, obliging him to sit up in bed. No expectoration; pulse 70, moderate. V. S. &c. &c.

12th.—Relieved by the bleeding. Dyspnœa again urgent. Only easy when sitting up in bed, with his head and shoulders bent forward. Cough, with scanty pituitous expectoration. Pulse 92, moderate.

May 2d.—Stuffing under upper portion of sternum, and rattling in his throat. Respiration over the part sonorous, but without rale. Apyrexia; pulse 68.

8th.—Tolerably well. Transferred to convalescent ward, and to be invalided.

June 27th.—Re-admitted. Sits up in bed, but dyspnœa not very urgent. Pulse 60, weak. Respiration sonorous in right subscapular and interscapular regions; elsewhere scarcely audible. Rattling in throat distinct to by-standers.

28th.—Dyspnœa very urgent all night. Respiratory muscles in strong action. Loud sonorous respiration over lower portion of trachea, like the prolonged sound of a steam-engine. The chest as yesterday.

Diagnosis.—Contraction of lower portion of trachea, from thickening of its lining membrane (tracheitis).

July 2d.—Is obliged constantly to sit up. Pain in left shoulder in the night. Tolerably easy during the day. Apyrexia. Pulse 80, moderate. Sonorous respiration confined to trachea. Respiratory muscles in strong action. Murmur in chest very indistinct.

5th.—Respiration high and clear over all the chest anteriorly; over trachea, highly sonorous. Heart's pulsations weak.

Diagnosis. — Heart and lungs healthy. Disease confined to trachea and perhaps large bronchi.

12th.—Soreness betwixt his shoulders; dyspnœa and rattling in his throat; pulse 88, moderate.

17th.—Pain under left nipple; thinks, but for that, he could now lie down.

V. S. ad ℥vi. &c. &c.

18th.—Blood cupped, and sizy. Pain removed. Respiratory murmur only very partially heard in chest since 5th inst., though both abdominal and thoracic muscles have always been in powerful action. Sonorous (engine) respiration over lower portion of trachea. Pulse 92, small.

21st.—Became rather suddenly worse towards morning. Now sitting up, his head and shoulders bent forward, scarcely able to breathe. Lips pale, surface cold. Pulse 80, occasionally indistinct——Died at 1 P. M. ——Marked in a note previous to examination,—'Suffocation from contraction of lower portion of trachea, from thickening of its lining membrane, or the pressure of a tumor from without.'——*Autopsy.*—True aneurism of aorta (right side) from immediately above valves to beyond origin of innominata. False sacculated aneurism from this, of the size of two oranges placed together, ascending behind sternum and impacted betwixt upper portion of that bone and trachea. Heart and lungs perfectly healthy, as were all the bronchial tubes and trachea, except a greater degree of redness at the part on which the aneurism was resting.

Remarks.—Where was the aneurismal sound and impulse? No doubt under the upper portion of sternum; but we were too easily satisfied, and perhaps as his chest was very thinly covered, were contented with applying the stethoscope over the softer parts, where it was more easily adjusted. The stethoscopic signs, &c., indicated obstruction to the free entrance of air into the lungs, and the expectoration, though scanty, was that of bronchitis—consequently bronchitis, and the obstruction caused by congestion or thickening of the bronchial membrane. We quite forgot the snoring and sibilous rales of bronchitis, but then this was the *dry* catarrh of Laennec, never thinking these depended on this very state. Had there been a free secretion, we should also have had the mucous rale. The low sibilous rale under left clavicle, and the thin mucous in right chest, at first assisted in leading us astray, but we ought to have seen they were too insignificant. They are now easily accounted for. Afterwards, when called to the immediate seat of the disease, nothing but the previous impression could have prevented the detection of aneurism, but with bronchitis on our minds, what was more possible than the disease to have more particularly affected the trachea and large bronchi? Even the clear respiratory murmur on the 5th July did not surprise us, for the disease had already

been marked, tracheitis. Its sudden appearance and disappearance might have convinced us that the obstruction could not have been of any permanent nature. Pressure of a tumor was ultimately suspected, but whether then an original or only revived idea, it would be now difficult to say. Aneurism we never dreamt of till just prior to the post-mortem examination, and then only as a possibility. It is evident, however, the most correct diagnosis could not have materially affected the result, and therefore it is a cheap as well as valuable lesson. It would be well, perhaps, to trace the course of the aorta in all pectoral affections, though it must be confessed a regimental medical officer cannot always give such a degree of attention to minor cases.

Pectoral Disease.

John Carty, æt. 31, 10 years in India. 15th June, 1835. Has been frequently in hospital with pectoral symptoms for a year past. Lost his voice in January last, and has never since recovered it. Admitted on the 2d instant with pain and stuffing in his chest, the former, particularly in left side, extending to left shoulder, dyspnœa and cough, with some expectoration of phlegm. These symptoms, though again considerably relieved, are by no means removed. Speaks in a kind of croaking whisper. Apyrexia. Pulse 76, equal at both wrists. Sleeps badly. Decubitus on back; lying on right side causes dragging sensation in the left chest; and lying on left increases the pain of that shoulder. *Physical signs.* Left 2nd, 3rd, and 4th cartilages curved downwards, and more prominent than right. Chest resonant, except over lower thirds of sternum (perhaps some deficiency also in left subclavian region, though not very evident).

Respiration louder (distressed) over all left chest anteriorly, even in cardiac region, than in right. Somewhat sonorous under clavicle, but without rale. Heart's sounds and rhythm natural. Sounds very distinct in right subclavian region. Diastole audible in left, but systole marked by bellows murmur. Bellows murmur also audible above left clavicle; in axilla, and in lower part of left interscapular region, but at present nearly confined to these. Impulse evident under clavicle near sternal junction, greater than in any part of cardiac region, but I think more appreciable without the stopper.

Diagnosis.—Sacculated aneurism of aorta, compressing the left lung and bronchi, and throwing the heart to the right of its natural situation.

Prognosis.—Most probably sudden death. Time very uncertain. Within 12 months.

Remarks. — Here we have the signs which we overlooked in the last. But for these, all we could have said would have been, that there was disordered function of left lung; or, from the general symptoms, we would have termed the disease pneumonia, knowing nothing of the matter. With the aneurismal sound and impulse, however, the history of the case, the loss of voice, the distressed respiration of left lung, with permeable state of both, and the situation of heart, are easily explained; and instead of now creating difficulty, all tend to confirm the diagnosis.

On the Retention of the Placenta.

Having lately observed in your valuable journal, one or two notices of the successful use of Ergot of Rye in the retenof the placenta, and impressed with a sense of the danger of trusting to medicine where the retention has been of much more than an hour's continuance, or where any untoward symptom is present, I am induced to subjoin the following, to bring the more efficient means conspicuously into view.

B. C.—ætat 28, the mother of several children. Had a miscarriage in the fourth month, three days previous to admission; brought to hospital at 9 A.M. in an almost continual state of syncope from uterine hemorrhage, supposed owing to retention of the placenta, that not having been positively ascertained to have come away, though the cord had the first night. An enema of 2 oz. of gruel, and a drachm of laudanum, having been administered, I immediately commenced to open the os uteri, by first insinuating one finger, then two, and so on, gradually dilating it from within outwards, and occasionally resting, to imitate natural pains. From the exhausted state of the patient, the dilatation was soon accomplished, and the placenta laid hold of, but still it could not be brought away till the hand was introduced, when a small portion of it was found grasped by a contraction in the fundus uteri. Into this contraction the fore-finger was insinuated, and the placenta liberated by drawing the finger two or three times firmly along its surface. The fingers were then moved gently round the womb till it firmly contracted, expelling its contents. Scarcely any blood was lost during the operation, perhaps partly owing to the exhausted state of the patient, but I think chiefly to the permanent stimulus of the fingers. It was such an extreme case, that I think but for Mr. Wilkins, of H. M. 4th Light Dragoons (then acting surgeon of the regiment), I should not have had courage to have gone on with it. Just before the hand was introduced she was for some se-

conds supposed actually dead. It is unnecessary to add, we had to make liberal use of spirits, &c. both during the operation, and for several hours after. In the evening, however, the pulse had become quite distinct, and she afterwards recovered without a single unfavourable symptom. While on this subject, I may mention we had a case where the placenta was expelled before the fœtus; but knowing it was not the first instance of the kind, I kept no notes of it. If I recollect right, she had uterine hæmorrhage for some days previous, but not alarming till the morning of admission.

I may also mention, I have tried the stethoscope in three cases of pregnancy: one in the sixth month, and the others in the eighth and ninth respectively. In all the sounds of the heart and placental arteries were very distinct. In the first, the sound of the heart exactly resembled the fast ticking of a watch, and seemed, as it were, to rise sometimes close to the ear, and then again sink to a distance.

In the others, the sound was softer, more distinctly double, and fixed. In the first the pulse was at 140; in the second, 136; and the third, 144, more easily numbered than the pulse at the wrist. The impulse of the child, too, was very distinct at times, and by no means agreeable to the ear, when listening for a low and distant sound. I have no doubt, Mr. Editor, you will agree with me in saying, that were it for pregnancy alone, the value of the stethoscope is incalculable.—*Indian Journal of Medical Science*, Dec. 1835.

METROPOLITAN UNIVERSITY.

The steps recently taken by the College of Physicians have given a stimulus to the framers of the new Metropolitan University; and we understand that the announcement of its completion may be immediately expected. In general science it will contain the names of some distinguished men, which it is hoped will serve to give a character to the establishment, and, in some degree, counterbalance the weakness of the medical department.

MIDDLESEX HOSPITAL.

Mr. Tuson was elected, on Thursday the 2d instant, to the vacant surgeoncy in this hospital. Mr. Alex. Shaw, it is expected, will be appointed Assistant-Surgeon.

NAVAL PROMOTION.

Mr. Richard Birtwhistle, senior assistant-surgeon of His Majesty's flag-ship Caledonia, 120 guns, Mediterranean station, has been promoted by Lord Minto, First Lord of the Admiralty, to the rank of full surgeon.

ELECTION OF A MEDICAL CORONER.

Mr. Ferrier, a medical candidate for the coronership at Great Yarmouth, has been successful.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

June 2, 1836.

Lewis Jones, Peneraig (passed on the 12th May).
James Robert Cole, Odiham, Hants.
Charles Elkins, Newman-street.
Edward Dakins, St. James's, Colchester.
James Cooper, Martham, Norfolk.
John Brigham Barsham, Cambridge.
Robert Chevallier Cream, Melford, Suffolk.
James Thomas Smith, Great Hadham, Herts.

WEEKLY ACCOUNT of BURIALS,

From Bills of Mortality, *May* 31, 1836.

Abscess	2	Inflammation	31
Age and Debility	44	Bowels & Stomach	3
Apoplexy	6	Brain	5
Asthma	15	Lungs and Pleura	3
Cancer	2	Influenza	1
Childbirth	2	Insanity	4
Consumption	50	Jaundice	1
Convulsions	24	Liver, diseased	4
Croup	8	Measles	1
Dentition or Teething	5	Mortification	6
Dropsy	14	Paralysis	2
Dropsy on the Brain	13	Scrofula	1
Epilepsy	2	Small-pox	8
Fever	2	Sore Throat and Quinsey	1
Fever, Scarlet	10	Venereal	1
Fever, Typhus	2	Worms	1
Gout	2	Unknown Causes	3
Hæmorrhage	3		
Heart, diseased	1		
Hooping Cough	8	Casualties	8

Increase of Burials, as compared with the preceding week . . 60

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

June, 1836.	Thermometer.		Barometer.	
Thursday . 26	from 36	to 61	30 20	to 30·24
Friday . . 27	31	63	30·29	30·31
Saturday . 28	31	64	30·31	30 26
Sunday . . 29	41	69	30·26	30·24
Monday . . 30	36	69	30·22	30·13
Tuesday . . 31	40	69	30 06	29 94
June. Wednesday 1	44	62	29·89	29·85

Prevailing winds, E. by N., and N. by E.
Generally clear; a little rain on the 1st instant.
Rain fallen, ·02 of an inch.

Charles Henry Adams.

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, JUNE 11, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XXXVII.

WE have now arrived at the consideration of one of the most important of our remedial agents,—namely, *Mercury*.

MERCURY, OR QUICKSILVER.

History.—*Mercury*, or *Quicksilver*, is one of the seven anciently-known metals; yet we have not the same complete account of its ancient history that we have of gold and of silver. In the Old Testament no mention is made of it, nor is it alluded to by Herodotus; so that we have no positive proof that the ancient Egyptians were acquainted with it. Lemoine, however, in his "*Treatise on Miracles*," says that the Egyptian magicians, in their attempts to imitate the miracles of Moses, employed rods and cords filled with quicksilver, which, being heated by the sun, imitated the windings of a serpent. The period when this occurrence is supposed to have taken place, is about 1500 years before Christ. You will find a similar statement in the "*Bibliothèque Orientale.*" Aristotle and Theophrastus speak of αργυρος χυτος (*argentum liquidum*); and the former of these writers mentions that Dædalus (who is supposed to have lived about 1300 years before Christ), communicated a power of motion to a wooden Venus by pouring quicksilver into it. Whether this was constructed on any principle like that of the toy called the Chinese tumblers I know not. It has also been said that Dædalus was taught this art by the priests of Memphis. Pliny and Dioscorides speak of quicksilver, and the latter describes the method of obtaining it from cinnabar.

It was first employed medicinally by the Arabian physicians, Avicenna and Rhazes; but they only ventured to use it as an external agent against vermin and cutaneous diseases. We are indebted to that renowned empiric, Paracelsus (who died A.D. 1541), for its first employment as an internal medicine.

Synonymes.—The names which have been applied to this metal are very numerous: of these, some have reference to its silvery appearance and liquid form,—as, υδραργυρος, *hydrargyrus*, and *hydrargyrum*, which are derived from υδωρ, *water*, and αργυρος, *silver*; and *argentum vivum*, *aqua argentea*, *aqua metallorum*, and the English word *quicksilver*, all of which have reference to its mobility or liquidity, and its similarity in colour to silver. It has been called *mercury*, after the messenger of the Gods, on account of its volatility. There are various other synonymes for this metal, which I pretend not to understand, such as *azoph*, and the Moorish words *zaiber* or *zabach*.

Native state.—Mercury is found in the inorganic kingdom only, and is to be regarded as a comparatively rare substance. Its ores may be arranged under three heads: 1st, *metallic quicksilver*, found either alone, (*native* or *virgin mercury*) in the form of globules, in the cavities of the other ores of this metal, or combined with silver, (*native amalgam*): 2ndly, *sulphuret of quicksilver*, called also *native cinnabar* or *vermilion*, the most important one, since from this, the metal of commerce is chiefly obtained; the principal mines for it are those of Idria in Carniola, and Almaden in Spain: 3dly, the *protochloride*, called *mercurial horn ore*, or *corneous mercury*. I ought also to add that traces of quicksilver have been met with in common salt,

during its distillation with sulphuric acid, by Rouelle, Proust, Westrumb, and Wurzer.

Extraction.—The usual method of extracting quicksilver from its ore, is to mix the native sulphuret with caustic lime, and distil in iron retorts. In this process the lime abstracts the sulphur, and the disengaged metal distils over. It is brought to this country in iron bottles, (holding from 60lbs. to 1 cwt.) the mouths of which are closed by iron screws, and also in goats' skins, two or three times double.

Properties.—At common temperatures it is an odourless tasteless liquid metal, having a whitish colour like silver or tin, and a specific gravity of 13·5. When cooled down to 38·66° F., it freezes and crystallizes in regular octahedrons. In this state it is ductile, malleable, and tenacious. Mr. Faraday has shewn that at common temperatures, and even when the air is present, mercury is always surrounded by a mercurial atmosphere; and according to Stromeyer, at from 140° to 160°, mercury mixed with water, is volatilized in considerable quantities. At 656° F. it boils, and produces an invisible elastic vapour, whose specific gravity is 6·976.

Chemists are not agreed on the atomic weight of this metal: at one time 200 was generally adopted; but several reasons led to the belief that this number was too high by one-half, and Dr. Thomson has accordingly adopted 100, and Berzelius 101·43. Dr. Turner, however, has inferred from some late analyses that it should be 202, a number which he, therefore, uses in his work. This discordance is most unfortunate, and might be adduced by the College of Physicians as a strong argument against using modern chemical names in the Pharmacopœia, since it must involve the adoption of one opinion to the exclusion of the other. For if the opinion of Thomson and Berzelius be adopted, corrosive sublimate should be termed *chloride of mercury,*—a name which, according to Turner's views, ought to be applied to calomel.

Characteristics.—Mercury, in the metallic state, is distinguished by its liquidity at common temperatures, and by its volatility. When invisible to the naked eye, and in a finely divided state, it may be readily detected by the white stain (called by workmen *quickening*) communicated to gold and silver. Thus in blue pill, blue ointment, and *hydrargyrum cum cretâ*, metallic mercury is readily distinguished by rubbing a portion of them on a shilling or sovereign. Mercurial vapour also may be detected by exposing gold or silver to its influence. If mercury be in combination with other metals, and the tests now mentioned be not applicable, we may dissolve the suspected substance in nitric acid, and proceed as I shall presently direct, in speaking of the mercurial preparations.

Impurities.—Mercury may be mechanically or chemically impure. The mechanical impurities (adhering dirt and dust) may be removed either by straining through flannel, or by filtering through a small hole in the apex of an inverted cone of paper. Chemical impurities, such as lead, tin, zinc, and bismuth, give to mercury the property of rapidly tarnishing or oxidizing in the air. To separate these, the metal, mixed with iron filings, is to be distilled in a coated earthen retort, to the neck of which a curved tube is adapted, which dips under water contained in a basin as the receiver. In the Pharmacopœia the mercury is ordered to be purified by distilling in an iron retort; but an earthen one is more convenient. In this way is procured the *hydrargyrum purificatum* of the Pharmacopœia.

Physiological effects.—We may examine the physiological effects of metallic mercury under two heads,—the effects of liquid mercury, and the effects of mercurial vapour.

(*a.*) *Effects of liquid mercury.*—From the experiments of Moulin, Haighton, Viborg, and Gaspard, it appears that when *injected into the veins*, mercury collects in the small vessels of the neighbouring organs, and acts as a mechanical irritant. Thus if thrown into the jugular vein, peripneumonia is excited; and, on examination after death, little abscesses and tubercles have been found in the lungs, in each of which was a globule of quicksilver as the nucleus.

Some difference of opinion exists as to the *effects of liquid mercury when swallowed*; one party asserting that it is poisonous, another that it is innocuous. The truth I believe to be this: so long as it retains the metallic state it is inert; but it sometimes combines with oxygen in the alimentary canal, and in this way acquires activity. Avicenna, Fallopius, and Brasavolus, declared it harmless; Sue states that a patient took for a long time two pounds daily without injury; and I could refer to the experience of many others who have seen it employed in obstructions of the bowels, without proving noxious; but the fact is so generally known and admitted, as to require no further notice. In some instances, however, it has acted powerfully, more especially where it has been retained in the bowels for a considerable time; no doubt from becoming oxidized. Thus Zwinger states that four ounces brought on profuse salivation four days after swallowing it. Laborde also tells us, that a man who retained about seven ounces in his body for fourteen days, was attacked with profuse salivation, ulcera-

tion of the mouth, and paralysis of the extremities; and other cases of a similar kind might be quoted.

Applied externally, liquid mercury has sometimes produced bad effects. Dr. Scheel has related a fatal case, attended with salivation, brought on from wearing at the breast a leathern bag, containing a few drachms of liquid mercury, as a prophylactic for itch and vermin.

(*b.*) *Effects of mercurial vapours.*—The injurious effects of mercurial vapours, when inhaled or otherwise applied to the body, have been long known. They are observed in water gilders, looking-glass silverers, barometer makers, workmen employed in quicksilver mines, and in others exposed to mercurial emanations. In most instances an affection of the nervous system is brought on, and which is indicated by the *shaking palsy* (or *tremblement mercuriel*), vertigo, loss of memory, and other cerebral disorders, which frequently terminate fatally. The first symptom of shaking palsy is unsteadiness of the arm, succeeded by a kind of quivering of the muscles, which increases until the movements become of a convulsive character. In all the cases (about five or six in number) which have fallen under my notice, the shaking ceased during sleep. I have not seen the least benefit obtained by remedial means, although various modes of treatment were tried. This is in opposition to Dr. Christison, who says the tremors "are cured easily though slowly." If the individual continue his business, other more dangerous symptoms come on, such as delirium or epilepsy; and ultimately death is produced.

In some instances salivation, ulceration of the mouth, and hæmoptysis, are produced by the vapour of mercury. The following remarkable case is an instance in point. In 1810 the Triumph man of-war, and Phipps schooner, received on board several tons of quicksilver, saved from the wreck of a vessel near Cadiz. In consequence of the rotting of the bags the mercury escaped, and the whole of the crews became more or less affected. In the space of three weeks 200 men were salivated, two died, and all the animals, cats, dogs, sheep, goats, fowls, a canary bird,—nay, even the rats, mice, and cock-roaches, were destroyed.

As metallic mercury in the liquid state is not active, it has been thought that mercurial vapour must also be inactive. Thus Dr. Christison thinks that the activity of the emanations arises from the oxidation of the metal before it is inhaled. I believe, however, with Buchner, Orfila, and others, that metallic mercury, in the finely divided state in which it must exist as vapour, is itself poisonous.

Uses of liquid mercury.—In the *first* place, liquid mercury has been used as a *chemical* agent, to dissolve silver coin which may have been accidentally swallowed; *secondly*, as a *mechanical* agent, it has been used to remove obstructions of the bowels; for example, intus-susception, or intestinal invagination. But neither theory nor experience seem favourable to its use; for in the greater number of cases the intus-susception is progressive—that is, the superior portion of the gut is insinuated into the lower portion, and, therefore, the pressure of the metal on the sides of the intestine cannot give relief; and even in cases of retrograde intus-susception—that is, where the lower portion of the bowels passes into the upper, mercury, instead of pressing the intus-suscepted portion back, might push it farther on, by getting into the angle of reflection between the containing and inverted gut. *Lastly*, water, which had been boiled with mercury (*aqua mercurialis cocta*), was at one time used as an anthelmintic: but if the metal be pure, the water takes up no appreciable quantity of it. Moreover, it would appear that mercury has no particular anthelmintic powers; for persons who were salivated have not been freed from their worms, and Scopoli very frequently found ascarides in the workers of the quicksilver mines of India.

Administration.—When taken internally it has been administered in various doses, from an ounce to a pound, or even more than this.

Mercurial Preparations.

Chemical properties.—When treated with potash or soda, globules of metallic mercury are obtained, which may be recognized by their liquidity at common temperatures, and by rubbing them on a piece of silver or gold. Solutions of the mercurial salts placed for some time in contact with a piece of bright copper, and afterwards rubbed off with paper, leave a silvery stain behind, which disappears when heated to redness. Those compounds which are of themselves insoluble in water, may be dissolved by digesting them with nitric acid; and the copper test may then be applied. In this way the mercury contained in calomel, vermilion, subsulphate and iodide of mercury, may be readily recognized. Sulphuretted hydrogen produces, with solutions containing mercury, a black precipitate.

Physiological effects. — Probably all the preparations of mercury are more or less noxious: the only doubtful exception to this statement exists in the case of the sulphurets; both of which Orfila asserts to be inactive.

(*a.*) *Local effects of mercurials.*—I believe that all mercurials act as local irritants,

but with different degrees of power: corrosive sublimate being among the most, and the protoxide among the least, active preparations. Mr. Annesley, however, seems to think that calomel is the reverse of an irritant; in other words, that it diminishes the vascularity of the gastro-intestinal membrane.

(*b.*) *Remote effects of mercurials.*—These vary in degree (not in nature) according to the kind of preparation used—the dose, the mode of application, the frequency of repetition, and so forth. I propose to examine these effects under three heads, or degrees of operation.

1. In very *small* and *repeated doses*, the first obvious operation of mercurials is an increase in the quantity of the secreted fluids. This is particularly observed in the digestive organs; the quantity of intestinal mucus, of bile, of saliva, of mucus of the mouth, and probably of pancreatic liquid, being increased; and we, therefore, find that the alvine discharges become more liquid, and contain a larger proportion of bile. The effect is not confined to these parts; for the pulmonary, urino-genital, and conjunctival membranes, become moister, the urine is increased in quantity, the catamenial discharge is sometimes brought on, the skin becomes damper and at the same time warmer. The absorbent or lymphatic system seems also to be stimulated to increased activity; for we frequently observe that accumulations of fluids in the shut sacs (as the pleura, the peritoneum, the arachnoid, and synovial membranes) diminish in quantity, become less fluid, and in some cases rapidly disappear. At the same time, also, glandular swellings and indurations of various kinds are dispersed. These are the cases in which the mercurials are called *alteratives*—that is, they indirectly induce healthy action in a very gradual manner; how, I know not; it may be, as some suspect, by their powerful influence over the lymphatic system, but the influence which several of our most important medicines (such as arsenic, cinchona, and mercury), exercise over diseases, is quite incomprehensible.

Slow or chronic poisoning. — If the use of mercurials, in these small doses, be continued for some time, the whole system becomes morbidly affected, constituting what might be termed *slow poisoning*; but the particular form of disease which takes place is liable to some variation, depending partly on the quantity of mercury introduced into the system in a given time. In some cases there is a cachectic condition produced, marked by disorder of the digestive organs, loss of appetite, wasting, incapability of much exertion, with increased secretion from all the organs, especially from the salivary glands. This state constitutes what has been called the *mercurial cachexia*, or *dyscrasia*. In other instances the nervous system becomes affected, and the *shaking palsy* induced. Sometimes *salivation* is the leading symptom; but of this I shall speak separately.

2. I proceed now to treat of the effects of mercurials taken in somewhat *larger doses*, as when we employ them as *sialogogues*. To a certain extent, the symptoms are those already mentioned; thus the action of the secreting and exhaling organs is usually increased, the cutaneous exhalation is augmented, the urine is in greater quantity, and the bowels are frequently relaxed. Of all the secretions, none are so uniformly and remarkably increased as those of the mucous follicles of the mouth and the salivary glands; and the increased secretion of these parts is accompanied with more or less inflammation, the whole constituting what is termed *salivation*, or *ptyalism*. The first symptoms of this affection are slight tenderness and tumefaction of the gums, which acquire a pale rose colour, except at the edges surrounding the teeth, where they are deep red. Gradually the mouth becomes exceedingly sore, and the tongue much swollen; a coppery taste is perceived, and the breath acquires a remarkable fœtidity. The salivary glands soon become tender and swollen; the saliva and mucus of the mouth flow abundantly, sometimes to the extent of several pints in the twenty-four hours. During this state, the fat is rapidly absorbed, and the patient becomes exceedingly emaciated. The blood when drawn from a vein puts on the same appearance as it does in inflammatory diseases. If the use of mercury be further persevered in, the mouth becomes ulcerated, the tumefaction of the gums increases, the salivary glands and tongue swell sometimes to such an extent that the latter hangs out of the mouth, incapacitating the patient from either eating or speaking. In some cases the gums slough, and the teeth loosen and drop out: and occasionally necrosis of the alveolar process takes place. During this time, the system becomes extremely debilitated and emaciated, and, if no intermission be given to the use of mercury, involuntary actions of the muscular system come on, and the patient ultimately dies of exhaustion.

Of the quantity and quality of saliva and buccal mucus secreted under the influence of mercury.—The *quantity* of saliva and buccal mucus discharged by patients under the influence of mercury, varies according to the quantity of the remedy employed, and the susceptibility of the patient. Formerly, salivation was carried to a much greater extent than it is at the pre-

sent day; and in the early part of the last century, from two to three quarts of saliva, in a day or night, was "accounted a good and sufficient discharge:" so, at least, we are told by Dr. Turner, a writer of that period.

And now with regard to the *quality* of the saliva discharged during ptyalism. Dr. T. Thomson analysed some, and gives the following as its contents:—

Coagulated albumen	0·257
Mucus (with a little albumen)	0·367
Chloride of sodium	0·090
Water	99·286
	100·000

The nitrates of lead and mercury produced copious precipitates with it; but the ferrocyanuret of potassium and infusion of galls had no effect. Its specific gravity was 1·0038; it was an opal fluid, and, by standing, deposited flakes of coagulated albumen.

According to Dr. Bostock, the saliva discharged under the influence of mercury, differs from that of health, in being less viscid, and in containing a substance analogous to uncoagulated albumen, such as it exists in the serum of the blood, so that it would seem the mercurial action alters the secretion of the salivary glands and makes it more analogous to the exhaled fluids of the serous membranes.

Fourcroy, Thomson, Bostock, Devergie, and several others, have not been able to detect the least trace of mercury in the saliva. Others, however, assert they have been more successful.

Eczema mercuriale.—Occasionally, during the progress of a mercurial course, there appears a vesicular eruption, which has had various names—namely, *hydragyria*, *mercurial lepra*, *mercurial erythema*, and *eczema mercuriale*. It occurs very rarely, and I have only seen two instances of it; in both of which it was very slight, and was seated on the side of the body. But out of forty-three cases which Dr. Alley saw in ten years, eight terminated fatally. The disease consists of innumerable, minute, and pellucid vesicles, which have been mistaken for papulæ: these give the appearance of a diffused redness to the skin, and a sensation of roughness to the touch. Sometimes it is preceded and attended by febrile disorder. It usually terminates by desquamation. In some cases a copious discharge takes place, and along with the epidermis the hair and nails fall off. There is usually some affection of the respiratory organs, indicated by dry cough and tightness of the præcordia.

Pseudo-syphilis.—Here also is the proper place for noticing another supposed effect of mercury—I mean the production of a disease similar to syphilis, and which has been termed *pseudo-syphilis*, the *mercurial disease*, or *hydrargyrosis*. It has long been observed that mercury is not always capable of removing the symptoms of syphilis; nay, in some cases it has appeared to make them worse. Now as they sometimes disappeared when we left off the use of the mercury, it was supposed that they were in fact the effects of the remedy, and not of the disease, and thus we read of buboes, chancres, and ulcerated throats, iritis, affections of the bones, of the periosteum, of the tendons, and of cartileges, produced by mercury, but I believe without any foundation. We never see them produced except when mercury has been employed for the cure of venereal affections, while on the other hand, all these symptoms may occur when this metal has not been used. In tropical climates, where it is given in immense quantities, these effects are never observed; but on this point I cannot do better than refer you to Dr. Musgrave's paper in the 28th volume of the *Edinburgh Medical and Surgical Journal*, and to Dr. Currie's *Examination of the Prejudice commonly entertained against Mercury.*

Non-mercurial salivation.—It is a point of some practical importance to know, that many causes besides the use of mercurials may bring on salivation. I have already noticed several other substances which occasionally have this effect; for example, hydrocyanic and arsenious acids, and tartar emetic. But in some instances salivation comes on spontaneously, that is, it occurs without any obvious cause. I have seen about a dozen cases of this kind, most of them females, in none of whom could I find the least reason to suspect they had taken a particle of mercury, for at least many months before they were under my care; the symptoms were precisely those caused by mercury, not even omitting the odour of the breath. The most remarkable case occurred very recently; here is a slight sketch of it.

Remarkable case of spontaneous salivation.—A man affected with rheumatism, sent to a surgeon for advice, who, without seeing him, prescribed some pills, one of which was to be taken thrice daily. At the end of the week, his rheumatism not being relieved, he sent his wife again to the surgeon, who ordered the pills to be repeated. Another week elapsed, when the patient requested Mr. H. W. Coward, surgeon of the New North Road, Hoxton, to see him, to whom I am indebted for part of the particulars of this case. Mr. Coward found his patient with the following symptoms: fever, great prostration of

strength, sore throat, rheumatic pains in the wrists, profuse ptyalism, more than a pint of saliva being discharged per hour, with the breath having the "mercurial" odour; and on the inner surface of the right cheek a foul ulcer. He ascribed his present condition to the pills, as he had no sore mouth until after taking them. On cutting one of the pills, it was observed to have a light-brown colour, and the odour of opium: hence it was supposed they were composed of calomel and opium. Purgatives, tonics, and gargles of the chloride of soda, were used without avail, and after some days, Mr. Coward requested me to see the patient. I found him in the following condition: right side of the face swollen and slightly red, gums swollen, red, and ulcerated, breath horribly offensive, its odour not distinguishable from that called mercurial; on the inner side of the cheek near the orifice of the parotid duct, there was a slough about the size of a sixpenny piece; salivation most profuse; in fact the saliva flowed in a continued stream from his mouth; over the body were observed a few petechiæ. Coupling this man's condition with what I may call the "moral" circumstances of the case, I concluded that these symptoms arose from the use of mercury. Notwithstanding the means employed, the man became worse, the sloughing gradually increased until the whole of the right cheek became involved, and in about a week from my first visiting him he died.

A day or two before his death, I called upon the surgeon who had prescribed the pills, to tell him of the dangerous condition of the patient, arising, as I then thought, from the use of mercury. He assured me that the pills contained the Dover's powder only, and not an atom of any mercurial preparation. These pills he kept ready prepared, as he was in the habit of prescribing them frequently. To prove the correctness of his statement, he called his assistant, who made and dispensed the pills, and shewed me his day-book, in which was contained this patient's prescription. Furthermore, on comparing the pills which were already prepared with those taken by the patient, they were found to be identical.

Mercurial erethysm. — Under the term "*mercurial erethysm*," Dr. Christison includes all the secondary and chronic effects of mercury—such as salivation, shaking palsy, &c. But I use this term in the sense it was employed by Mr. Pearson—namely, to indicate a particular morbid condition of the system brought on by mercury, and which frequently terminates fatally. It is characterized by great depression of strength, a sense of anxiety about the præcordia, frequent sighing, trembling, a small quick pulse, sometimes vomiting, a pale contracted countenance, and a sense of coldness; but the tongue is seldom furred, nor are the vital or natural functions much disordered. When these symptoms are present, a sudden and violent exertion of the animal power will occasionally prove fatal.

Discoloration of the skin. — Harrold, in Meckel's *Archiv*, mentions the case of a man who was submitted to a mercurial course, after having used sulphur internally, and who, in consequence, became black. Dr. Rigby has also related an analogous case, in the London Medical Repository.

A female affected with itch and syphilis was admitted into one of the pauper establishments of Norwich. "Sulphur ointment was used in the first instance for the cure of the cutaneous disease, and soon after, while the fœtor of the skin sufficiently evinced the continued sulphurous impregnation, she began the mercurial friction. When the mouth became affected, the skin began to assume a dirty blue colour, and, by degrees, the mercurial friction going on it became quite black, the patient exhibiting the appearance of an Æthiopian." It would seem, therefore, that the sulphur and the mercury were each thrown out of the system by the cutaneous organ, and immediately they were out of the sphere of the vital powers, they entered into union and formed the black sulphuret of mercury, which was deposited on the surface of the skin, in a pulverulent form, for it soiled the linen, and a dirty black powder was separable from both the skin and the linen; and, soon after the mercurial friction was discontinued, the stain disappeared.

3. *Acute poisoning.*—When *large doses* of some of the soluble salts of mercury have been swallowed, *gastro-enteritis* is observed. The patient complains of an acrid styptic taste in the mouth, and of a feeling of burning and tightness in the throat; the face is usually flushed and sometimes swelled, violent vomiting and purging (frequently of bloody matters) soon come on, the vomiting being increased by every thing taken into the stomach; oftentimes there is irritation of the urinary passages, and sometimes even suppression of urine: the pulse is small, frequent, and contracted—the respiration difficult—the extremities cold. In some cases *salivation* is produced; this seldom comes on during the first 24 hours,—and in those instances, in which it does occur, is seldom delayed beyond the fourth day. Towards the termination of the case, some indications

of *disorder of the cerebro-spinal system* come on,—such as slight drowsiness, or stupor, or even coma,—tremors and twitchings of the muscles, and sometimes even violent convulsions—in some cases paraplegia. These symptoms terminate in death. Post-mortem examination discovers inflammation, and its consequences, of the gastro-intestinal membrane.

Theory of the operation of mercurials on the system.—I propose to examine, under this head, several points connected with the operation of mercurials, which are of a debatable or disputable kind.

(*a.*) In the first place, *does mercury become absorbed?* That mercury does enter the blood, and is afterwards either deposited in some of the solids of the body, or thrown out of the system by the excretories, is proved, I think, beyond the shadow of doubt. The proofs are three-fold.

In the *first* place, mercury has been detected in the blood by Zeller, by Buchner, by Colson, and by Schubarth. Many persons, however, have failed to discover it in this fluid; and it would appear, therefore, either that this metal is not invariably present, or that it is in some peculiar state or mode of combination, so as not to be recognizable by the usual means of analysis: for the failure cannot always, I think, be referred to defective manipulation, as some very dexterous chemists have failed in detecting it.

Secondly, mercury has been found in the perspiration, in the saliva, in the gastro-intestinal secretion, in the bile, and in the urine. M. Colson, in the 12th volume of the *Archives générales*, has given a list of the persons who have in this way detected mercury—and to his paper I must refer those interested in this inquiry. Now, since the secreted and exhaled fluids are formed from the blood, the detection of mercury in them is a sufficient proof of its previous existence in the latter.

Thirdly, this metal has been found in the bones, brain, synovial capsules, pleura, humours of the eye, cellular tissue of the perineum, in the lungs, &c.; and here I must again refer you to M. Colson's paper for a list of the authorities on this point,—as well as to Wibmer's work, "*Die Wirkung der Arzneimittel und Gifte.*"

(*b.*) The second question to be examined is this:—*Are the constitutional effects of mercury the consequences of its absorption?* I believe we ought to answer this in the affirmative, and on three grounds:—

In the *first* place, mercurials affect the general system to whatever part of the body they may be applied, whether to the mucous membranes, the cutaneous system, (Dr. Wilson Philip has seen a mercurial plaster affect the gums), the cellular tissue, or injected into the veins. *Secondly*, the action of mercurials on the system is assisted by the use of bloodletting and emetics, agents which promote absorption. *Thirdly*, when mercurials are administered by the stomach, and excite purging, they rarely affect the general system, apparently in consequence of the function of absorption being suspended.

The operation of mercurials, therefore, seems to be best explained by supposing that the metal gets into the blood, and thus is brought in contact with all the tissues of the body, on some of which it operates more powerfully than on others, in consequence of some peculiar modifications in the state of their vital properties.

(*c.*) *On what parts does mercury seem to act specifically?*—In the first place it is obvious that it operates in a remarkable manner on the *secreting* and *exhaling* organs (particularly on the mucous follicles of the mouth and the salivary glands). The liver also, in common with other secreting organs, feels the stimulus thus communicated to it; and some writers imagine, it is specifically influenced in a more distinct manner than other glands. Thus Dr. Wilson Philip says, "mercury has a specific operation on the liver, a power not merely of exciting its functions, but of correcting the various derangements of that function in a way which it does not possess with respect to any other organ, and which no other medicine possesses with respect to the liver." I confess I am not acquainted with any facts warranting this assertion; for I have seen mercury as efficacious in hemiplegia, as can have been observed in affections of the liver. The purgative effects of mercury arise partly from the increased secretion of bile, and partly from the stimulus given to the mucous lining of the alimentary tube, more particularly to its follicular apparatus.

The *nervous system* appears also to be specifically affected by mercurials. This is to be inferred partly from the effects produced in those subjected to the vapours of this metal, such as the shaking palsy, &c. and partly from the effects of the soluble salts, when given in enormous doses.

The *heart* and *lungs* are, in some cases, remarkably affected. This was particularly observed by Sir Benjamin Brodie, in his experiments on animals with corrosive sublimate; as also by Smith, Orfila, and Gaspard.

The affection of the *urinary organs* in poisoning by corrosive sublimate is also not to be forgotten.

(*d.*) The next question we have to discuss is one which necessarily involves much hypothesis; it is—*What kind of influence does mercury exercise over the system?*—The answer to it is so closely related to that of another question; namely, *how do mercurials affect diseases, particularly syphilis?*—that I shall examine the two questions together.

The action of mercurials on the system, and their influence over diseases, have been explained at different periods in different ways, according to the then prevailing theory: and thus, at one time, their influence was attributed to their mechanical, at another to their chemical properties; according as the prevailing hypothesis of the day was founded on mechanical or chemical notions. Not finding these ideas satisfactory, others have attempted to explain the action of mercury (as well as of other remedies) independent of mechanical or chemical details. It would be a waste of time to enter into particulars respecting these theories, except, perhaps, so far as to point out how they were applied, so as to explain the influence of mercury over diseases, more especially syphilis. For convenience, I shall arrange these theories under two heads,—according as they are founded on mechanical or chemical considerations, or are independent of them.

1. *Mechanico-chemical hypotheses.*—(*a.*) Astruc and Barry fancied that mercury acted by its weight, its divisibility, and its mobility; and thus getting into blood separated its globules, rendered it more fluid and more fit for secretion, made the lymph thinner, and overcame any existing obstructions. (*b.*) Others have fancied that certain diseases, as syphilis, depended on poisons contained in the blood, and that mercurials caused their evacuation by the different secretions, as by salivation, by purging, by perspiration, or by expectoration. This was the opinion of Cullen, of Murray, and of Brefeld. But a very simple answer may be given to this hypothesis,—namely, that the beneficial influence which mercurials exercise over diseases is not proportionate to their evacuant effects. (*c.*) The action of mercurials on the secretions was explained by Dr. Cullen on chemical grounds: mercury, says he, has a particular disposition to unite with ammoniacal salts, with which it passes off by the various excretions; and as the saliva was supposed to contain more of these salts than other secretions, he thus accounted for the larger quantity of mercury which passed off by these glands, and the consequent salivation. But the whole hypothesis falls to the ground, when it is known that mercury has no "particular disposition" to unite with the ammoniacal salts, and that even if it had, other secretions are as abundantly supplied with these salts as the saliva. Dr. John Murray substituted another hypothesis, but equally objectionable: mercury, says he, cannot pass off by the urine because of the phosphoric acid contained in this fluid, and which would form, with the mercury, an insoluble compound. It must, therefore, be thrown out of the system by other secretions, particularly by the saliva, which facilitates this transmission by the affinity which the muriatic acid, the soda, and the ammonia of the secretion, have for the oxide of mercury, and by which a compound soluble in water is formed. The answer to this hypothesis is, that mercury *is* thrown out of the system by the urine, and probably in larger quantity than by the saliva; secondly, the saliva also contains phosphatic salts, according to Tiedemann and Gmelin. (*d.*) Some have explained the efficacy of mercury in syphilis, by supposing that it acted chemically on the syphilitic poison, as acids and alkalies act on each other. I may refer to Mitié, Pressavin, and Swediaur, as supporters of this notion. But if it were correct, the larger the quantity of mercury employed, the more effectually subdued would be the venereal disease which we know not to be the case. (*e.*) The last chemical hypothesis which I shall notice, is that which supposes the efficacy of mercurials to depend on the oxygen they contain. This was originally suggested by Girtanner, and led to the use of acids and other oxygenated substances, as substitutes for mercury. Several facts might be adduced against it, but I shall only notice two,—namely, that other substances which contain as much oxygen, and give it out as readily, are not equally beneficial in syphilis; and that those mercurials which contain the least portion of oxygen, are more useful remedies than others containing a larger quantity.

2. *Dynamical, physiological, or vital hypotheses.*—(*a.*) Some term mercury a *stimulant*, and refer all its beneficial effects in diseases to its stimulating properties. But those who adopt this hypothesis are not agreed as to whether particular parts are stimulated or the whole system, and if particular parts, what these are; since Hecker fixes on the lymphatic system, Schöne on the arterial capillary system, Reil on the nerves. The simple answer to all of them is, that other stimulants are not capable of producing the same effects on the constitution as mercury; nay, are frequently hurtful in the very same cases that mercury is beneficial. (*b.*) The op-

posite opinion—that mercury is a *weakening* or *sedative* agent—has also been maintained by some. Thus Horn says that it is a direct weakening agent, and at the same time, by the evacuations, it produces an indirect one. Hence those who adopt this hypothesis, must assume that the diseases in which mercury is beneficial are of a phlogistic or hypersthenic character; and that syphilis, therefore, is of this nature: an explanation not at all satisfactory, nor consistent with facts. Of late years, the sedative operation of some of the mercurial preparations (calomel and mercurial ointment) has been assumed (particularly by our countrymen practising in the East), from the circumstance that these agents allay vomiting and diarrhœa in yellow fever, cholera, and other dangerous diseases. But even admitting that mercurials do produce these effects, this is hardly a sufficient ground for denominating them sedatives. Some think that mercurials, in small or moderate doses, are stimulants, but in excessive doses, sedatives; and that this sedative operation is common to all substances when employed in large quantities. This is the opinion of Dr. Wilson Philip. Practitioners of the East appear to ascribe the sedative effects of mercurials chiefly or wholly to two preparations—namely, calomel and mercurial ointment; and Dr. Gibson goes so far as to assert that blue pill is perfectly inadequate to any good purposes; nay, he says it is generally inert in India.

(*c*.) But mercury is not to be regarded as a mere stimulant, or a mere sedative—that is, as not affecting merely the *degree* of the actions of the system, but as also influencing their *quality;* and in this way, I presume, we are to explain its influence over diseases, especially syphilis. It is thus that Mr. Hunter accounts for its beneficial effects; for he says it produces an irritation of a different kind from that caused by the venereal disease, and that it counteracts the latter by destroying the diseased action of the living parts.

Thus, then, after this long account of the *modus operandi* of mercury, the conclusions at which we have arrived are rather of a negative character, and lie in a very small compass: it appears that this metal becoming absorbed, excites a new action in the system, differing, not merely in degree but also in quality, from other morbid actions, and from healthy; and that this capability of exciting a new action in the system, is not referrible to any known mechanical or chemical properties possessed by mercury.

AN ACCOUNT

OF

SOME CASES OF TRANSPOSITION OBSERVED IN THE HUMAN BODY*.

By Dr. Watson.

The following unusual disposition of the viscera was unexpectedly discovered in examining the body of John Reid, who had been a patient of mine in the Middlesex Hospital, and who died there in October last. He was 48 years old.

The mediastinum was observed to slope to the right from above downwards. The heart and pericardium lay on the right side of the sternum, and pointed, in a slanting direction, towards the right. The right lung was divided into two lobes only; the left into three. The aortic chambers of the heart were situated posteriorly on its right side; the pulmonic anteriorly on its left. The arch of the aorta passed obliquely across from left to right. The left carotid and subclavian arteries sprang from the aorta by a common trunk; the right carotid and subclavian were given off separately. The venæ cavæ opened into their proper auricle on the left side of the spine.

In the abdomen the aorta descended, between the crura of the diaphragm, on the right side of the inferior cava. The apertures in the diaphragm, and the bearings of its several parts, presented a corresponding interchange of relative position. The liver occupied the left hypochondrium, the gall-bladder lying in the under part of its left and thickest lobe. The stomach had its larger extremity and cardiac orifice in the right hypochondrium; the pylorus being in the left: and on the right of the stomach was the spleen. The cæcum was found in the left flank; and the colon mounted on the left side, passed transversely across from left to right, and descended on the right side to terminate, by the sigmoid flexure, in the rectum. The left kidney was placed about an inch and half lower than the right. Before the body was opened, it had been noticed, that the right testicle hung lower than the left.

The whole variation from the ordi-

* Read at the evening meeting of the College of Physicians, May, 30, 1836.

nary arrangement, *apparent to the eye*, may be summarily stated thus:—Throughout the body, all the organs which, though occurring in pairs, differ, each from its fellow, in some notable particulars of figure or position—as the lungs and kidneys—were mutually transplaced, and lay on the opposite side of the body to that which may be called their normal side; and all the single and unsymmetrical organs,—as the heart, liver, and intestines,—were not only found on the contrary side to that on which they commonly lie, but had, also, (like the former organs) their own correlative parts and aspects similarly reversed in position from right to left, and from left to right.

It would, however, be inexact to speak of the change as being limited to the parts hitherto mentioned. Doubtless, it was complete and universal. But, of those organs which are double, and correspond in all points to each other, as the eyes, the ears, the limbs; or which, being single, are composed of symmetrical halves, as the nose, the brain, the spinal chord; we distinguish the right from the left organ, or the right from the left moiety, only by the relative positions of its constituent parts: and these positions being themselves also laterally reversed, the translocation of such organs or halves is no longer obvious to the sight, although analogy leaves the fact of its existence scarcely questionable.

To those who are unacquainted with anatomical details, but yet are aware that "whilst the cavities of the body are so configurated as *externally* to exhibit the most exact correspondency of the opposite sides, the contents of these cavities have no such correspondency*," the nature of the variation displayed in this particular instance may be made clearer by stating, that the viscera within the chest and belly, when exposed to view, presented exactly the appearance which the same viscera, under the usual conformation, would present, if seen reflected from a plane mirror: and, conversely, that the image of the viscera, in this abnormal case, would resemble a picture of the viscera in their normal or more common form and arrangement.

Or, as Winslow has well observed of such cases, the viscera thus unusually disposed, may be said to resemble the viscera in their ordinary disposition, as the left hand resembles the right.

The reversed heart, from the Anatomical Museum of King's College, is upon the table.

But to those who are here present this evening, I fortunately have the means of giving a better notion of this anomalous formation, than can be derived from any verbal description. After this paper was written, I accidentally learned that another case of precisely the same kind had recently occurred in London, and that a preparation of it had been made by Sir Astley Cooper. Sir Astley has done me the favour of allowing me to show you that preparation—which is no less beautiful as a work of art, than it is curious as displaying a freak of nature. He has further obliged me with some particulars of the case, which I shall take the liberty of laying before the College in his own words. It may be as well to premise, that certain points adverted to by him had already been touched upon by myself, in a subsequent part of this paper. The preserved specimen tells its own story.

Sir Astley Cooper's Case.

"Mr. Braine, surgeon, of St. James's Square, in making a *post-mortem* examination of a woman, who had been a patient of his, was surprised at observing the cæcum, with its vermiform process, placed in the left iliac fossa, upon the iliacus internus muscle, in the usual situation of the sigmoid flexure of the colon; and, upon further investigation, he observed a complete transposition of the thoracic and abdominal viscera. Mr. Braine had the kindness to send me word, that he would be glad to show me this rare occurrence; and on the following day I had the pleasure of meeting him, Mr. Bransby Cooper, Mr. French, and Mr. Balderson, at the inspection of the body.

"After a careful examination of the position of the different viscera, I requested permission to make a preparation of the parts, with which request Mr. Braine had the great kindness to comply.

"The viscera were removed with care by Mr. Balderson, and sent to my house, where, having injected them, I had them dried and preserved; and have now the pleasure of sending the pre-

* Paley's Theology, c. 11.

paration to the President and Members of the Royal College of Physicians for their inspection.

"The name of the woman was Susan Wright. She was in her 74th year. Her height was 5 feet 5½ inches. Her form was peculiarly symmetrical and perfect, and nothing had been ever discovered to lead to a suspicion of her having any unusual conformation. She had been an inhabitant of Chelsea for many years, and had been in the capacity of housekeeper in a gentleman's family; but since the year 1824 she had lived in London, and from that time to her death had been under the constant observation of several medical gentlemen, who, if there had been any thing peculiar in her conduct, manner, or physiological functions, must have discovered it.

"Her principal employment was that of being an attendant of the sick wards of the institution in which she was placed,—and in that situation she was frequently called upon to dress the wounds and ulcers of the surgical patients, in doing which she exhibited a remarkable degree of adroitness; and all who had observed her agreed, that she gave the preference to the use of the right hand.

"In her disposition she was remarkably kind and humane, ever anxious to extenuate the faults and lessen the sufferings of others, to overlook their improper conduct and excesses, to administer to their wants, and to commiserate their misfortunes.

"Her habits were generally extremely temperate, although she had been upon a few occasions observed in a state of inebriation. She had never been married, and the appearances after death shewed that she had died a maiden, as the *hymen* still remained, and there was a more than usual elongation of the perineum over the orifice of the vagina.

"Her general health had been remarkably good until two years before her death, when she had a severe attack of fever, from which, however, she gradually recovered, and returned to her usual occupations.

"She died of *diarrhœa*, on the 19th of March, 1836.

"*Post-mortem examination.* — The transposition of the thoracic and abdominal viscera was complete; the basis of the heart was placed to the left, and its apex to the right side. The left lung was divided into three lobes, and the right into two. The trachea passed down upon the left side of the neck, whilst the œsophagus was situated to the right; and the left bronchus was larger than the right.

"With regard to the abdominal viscera, the liver and gall-bladder were found upon the left, the spleen and cardiac extremity of the stomach upon the right side. The pancreatic duct, and ductus communis choledochus, terminated in the duodenum at the same point upon the left side. The cæcum, with its appendix, occupied the left iliac fossa. The left kidney was placed lower than the right, in consequence of the liver occupying the left side of the abdomen; and the right emulgent vein was longer than the left.

"The diaphragm also was completely transposed, both in its crura, and in its tendinous part. The inferior cava passed through its tendinous portion on the left side, whilst the œsophagus penetrated the muscular structure on the right.

"The blood-vessels had undergone the same transposition, the curvature of the aorta passing from the left to the right side, and sending off the arteria innominata to form the left carotid and left subclavian arteries; next, the right carotid; and lastly, the right subclavian artery;—and the aorta then descended upon the right side of the spine, both in the chest and the abdomen, to form its bifurcation on the right side of the lumbar vertebræ. The vena azygos appeared on the right side of the aorta. The vena cava inferior penetrated the tendinous opening in the diaphragm on the left side, entering what was, in this subject, the left auricle of the heart. The right spermatic vein terminated in the right renal vein, and the left in the inferior cava. The vena portæ entered the liver on the left side.

"I injected the thoracic duct from the second lumbar vertebra, and it took its course to the lower part of the neck on the right side; but the jugular and subclavian veins had been removed before I saw the subject, and, consequently, the direct termination of the thoracic duct had been destroyed.

"As the viscera were removed from

the body for the purpose of being prepared, the connexion of the nerves was in a great degree destroyed; and I cannot, therefore, speak positively as to their distribution.

"The only circumstance in which the anatomy of this woman differed from others was in the existence of two superior cavæ, one placed upon the right, and the other upon the left side, and both terminating in what was, in this subject, the left auricle. But I have occasionally seen this variety in the anatomy of men, in whom there had been no transposition of the viscera; and it occurs frequently in quadrupeds in whom the entrance into the thorax is narrow.

"The uterus and ovaria were exceedingly small, and quite of the character of these parts in a girl of from 15 to 20 years.

"Upon the whole, then, it appears that the transposition of the thoracic and abdominal viscera, when it is complete, produces no change in the functions of the individual; and that life may be protracted to the same period as under the usual formation of the body.

"I certainly should have expected that a person so constituted would have given a preference to the use of the left hand; which did not happen in this woman; but I do not think these cases are decisively conclusive upon this point, as parents are disposed to break the habit in their children of using the left arm, and may thus destroy the disposition to the preference which they otherwise would have shewn.

"This is the fourth case of transposition of viscera which I have seen. The first was published by Dr. Baillie; the second occurred in a female patient of Dr. Crawford's, in St. Thomas's Hospital, of which I have a drawing; the third was brought into the dissecting-room of St. Thomas's Hospital, and the body having been dissected by Mr. Dease, of Dublin, the preparation was given to him; the fourth is that which I have the pleasure of now sending to Dr. Watson, for the inspection of the members of the Royal College of Physicians."

This curious variety of animal structure is by no means so uncommon as many have supposed. Dr. Baillie has minutely described* one instance of it, which he met with in his dissecting-room in Great Windmill-street, and to which Sir A. Cooper refers. He had also seen a fœtus, at the full time, with the viscera transposed; and a reversed heart that had belonged to another very small fœtus, and was preserved in the Anatomical Collection of Christ Church, in Oxford. He tells us, that after having been at the pains of consulting many authors, he had found this *lusus naturæ* mentioned by Cattierius, M. Mery, and M. Daubenton only; but by none of them with sufficient particularity. Authentic instances are, however, much more numerous than this statement would lead us to expect.

A similar formation was discovered in the body of Smithers, who was executed, in 1832, for arson and its consequences; and who, for some time previously to his trial, had lain in the Middlesex Hospital, his face and hands having been severely burned in his fraudulent attempt to destroy his house in Oxford Street by fire. His body was given for dissection to the Medical School of the London University, where preparations of the transposed parts may now be seen.

In the same year, and about the same time, a man, Benjamin Stubbington by name, and 28 years old, was killed, near Winchester, by the passage of a loaded cart across his belly. In his body, which was examined in the County Hospital by Mr. Charles Mayo and others, the same abnormal collocation of the thoracic and abdominal organs was observed to exist. I have been favoured with a particular account of this case by Mr. Druitt, who was himself present at the examination. I omit the details, however, because all descriptions of such cases must be, in substance, the same.

Another example was noticed, also in the same year, in the body of an adult mulatto, who died of cholera in the General Hospital, Calcutta. It is recorded in the MEDICAL GAZETTE†, by Mr. William Hardy, who erroneously supposed it "a case without parallel in the history of congenital malformations."

It is singular that Dr. Baillie, in the

* Phil. Trans. 1788, vol. lxxviii.
† Vol. xii. p. 79.

search he instituted among authors, should have overlooked a case which is related in one of the early volumes of the Philosophical Transactions* themselves, by a Dr. Henry Sampson. It occurred in the person of a Yorkshire clergyman, who died apparently of consumption. After describing certain morbid conditions found in his body, Dr. Sampson goes on to say, "But that which most of all surprised us was the inverted order of his bowels. His liver, which was very large, lay in the left hypochondre, and his spleen in the right. The cone of his heart was on the right side, and accordingly the larger and thinner ventricle was found on the left; and the thick one, which in others is on the left side, was in him on the right. The *great artery* descended on the right side, and the *vena cava* ascended by his liver on the left. The *œsophagus* descended to the first orifice of the stomach on the right side, which made the *pylorus* and entrance of the *pancreas* be on the left, and the first flexure of the small guts to be towards the right, so that the beginning of the *colon*, with its *appendicula*, lay at the left *os ilion*, and the *flexura sigmoidæa* towards the right. Other things that necessarily followed this site, need not be mentioned."

"This person (he subjoins) was never observed in his lifetime to have any distemper or usage which might discover this inverted situation of his bowels, nor had this contra-position any evident influence upon his diseases and death. He was about thirty years of age, a married man, had several children, was of a middle stature, healthful till toward the latter end of his time: had no prominency on his left side more than the other, was not left-handed, nor had any weakness on his left side."

The instance described by M. Mery, and referred to by Dr. Baillie, is certainly not deficient in particularity. It is fully detailed by the celebrated anatomist, Winslow, in his *Remarques sur les Monstres*, published in the *Mémoires de l'Académie Royale*, for the year 1733. He cites the original narration drawn up by Maloet, and signed by Mery and others: he states, however, that a report of the same case, made in 1689, by Duhamel, at that time secretary to the Academy, was too much abridged. It was probably Duhamel's briefer account that Dr. Baillie had seen.

The subject of this case was a soldier of the Hôtel Royal des Invalides, 72 years old. It seems to have excited much curiosity among the Parisian *savans;* and it gave occasion for the following doggrel verses:—

"La nature, peu sage, et sans doute en débauche,
Plaça le foie au côté gauche;
Et de même, vice-versâ,
Le cœur à la droite plaça."

This strange medley of vile poetry and worse taste would scarcely justify its quotation, except as a sort of curiosity in literature. It is ascribed to the pen of the celebrated Leibnitz, the contemporary, and almost rival, of our mighty Newton.

Winslow informs us, that a similar deviation from the customary formation was observed in the year 1657, in the body of a commissary of the regiment of guards, in Paris. He refers also to another example met with in 1650, in an assassin, whose body, after being broken on the wheel, was dissected at Paris by Dr. Regnier and M. Bertrand, the latter an experienced anatomist. Riolanus, who was present at the examination, afterwards described the appearances in a tract, entitled *Disquisitio de transpositione partium naturalium et vitalium in corpore humano.* It is the same case that Cattierius, of Montpellier, has recorded; and Bonetus, in his *Sepulcretum*, has copied, almost exactly, the statement of Cattierius.

Bartolinus*, after citing the same case, states that Petrus Servius, a most learned physician, had assured him that he had seen a similar position of the viscera at Rome, in 1643.

It appears from the *Bulletins de la Faculté de Médecine de Paris*, that at the sitting of the 12th of December, 1816, M. Beclard submitted to the inspection of the members of the society the trunk of an aged woman, in whom a complete transposition of all the viscera of the chest and belly had been met with.

Maximilian Stoll, in his *Ratio Medendi*, says that in the year 1767, he dissected the body of a person, (whose sex he does not mention, and who died of the black jaundice,) and found a total

* Vol. ix. No. 107.

* Hist. Anat. Rar. Cent. ij. xxix.

transplacement of the viscera "tam pectoris quam abdominis."

M. Joly has related another case, that occurred in the person of a canon of Nantes.

In the sixth volume of the *Archives générales de Médecine*, an instance is given by Dr. Dubled: his narration is quoted at length by M. Bouillaud, in his recent treatise on diseases of the Heart. The subject of this case was a man 20 years of age.

Two more examples are referred to in the fifty-third volume of the *Dictionnaire des Sciences Médicales*. One of these was in a child, 9 years old, that died of anasarca, in the Hôtel-Dieu at Lyons: the details are recorded by M. Poulin. The other, related by MM. Nacquart and Piorry, occurred in a male child of six years and a half, who died of croup.

Capuron, in his *Traité de la Médecine Légale relative aux Accouchemens*, tells us that twenty years before, he had seen a case of this nature in Bichat's amphitheatre, in the body of an infant dead of some accidental malady some time after its birth. He adds, that he is acquainted with a student in pharmacy, 30 years old, living in Paris, whose heart is situated on his right side. It is to be regretted that no observation is recorded by M. Capuron as to the position of the abdominal viscera in this person.

In the *London Medical and Physical Journal* for 1826, a case is described which fell under the notice of the late Mr. Rose, at St. George's Hospital. The subject of it was a woman 40 years old. Mr. Rose had met with another instance, in a soldier of the Coldstream Guards, who died at St. Jean de Luz, in the south of France, in 1814. This case was seen by Sir James M'Grigor, and many of our military surgeons. A similar variety was observed by Mr. Bacot, in a soldier of the Grenadier Guards, whose body was examined at Chatham. Baron Larrey, in his Memoirs of Military Surgery, mentions another example.

In the same journal for 1828, a case is cited from the *Annales de la Médecine et de Physiologie* for May in that year. It was discovered in the body of a soldier who had always enjoyed good health, but was killed in a duel. It is worthy of remark, that this man seemed to have been aware of something peculiar about himself, for he often jestingly affirmed to his comrades that, whatever the faculty might pretend, he was sure his heart was on his right side.

In the *Gazette Médicale* of last year, an account is given of a man, 25 years old, who died of fever, in La Pitié, under the care of M. Bally; and the position of whose thoracic and abdominal viscera was reversed throughout. The transplacement was detected by M. Bally while his patient was yet living, and many physicians and a great number of students were attracted by curiosity to visit and examine him. An English journal makes this comment upon the case:—"The most remarkable fact referrible to it is, that the man never experienced any inconvenience from the transposition of his organs during his life. The case is, perhaps, unique."

In the month of January, 1823, the viscera of the chest and abdomen were found transposed in the body of a female, aged about 40, which had been brought to the dissecting-room of St. Bartholomew's Hospital. Mr. Stanley has had the kindness to furnish me with the notes, which he then took, of the appearances. His description of them necessarily accords, in the main, with those already given, but he mentions one circumstance which renders this case peculiarly interesting.

In a former part of this paper, I expressed my belief, that the transposition or interchange between the two sides is total and absolute. The circumstance to which I allude throws some slight shade of doubt over the correctness of that notion. Mr. Stanley found the left nervus vagus in its ordinary place, *i. e.* upon the front part of the œsophagus, while the right nerve lay behind it.

If future observation should shew this disposition of the par vagum to be invariable in such cases, it will strengthen the opinion, which I believe Mr. Stanley entertains, that the translocation belongs primarily and essentially to the machinery of the circulation; and that the other structures of the body, and the nervous system in particular, are reversed only to the extent necessary for adapting them to the altered situation of the blood-vessels. The recurrent nerve, however, was found in Mr. Stanley's case, as well as in those described by Dr. Baillie and by M. Bally, to wind, on the right side,

round the arch of the aorta, and on the left round the subclavian, or the common trunk of the carotid and subclavian arteries*.

The instances now cited, or referred to, amounting in number to twenty-nine, are quite enough to shew that this variety of configuration, though rare, is far from being unique. With greater leisure and opportunity for research, more might probably have been collected. M. Isidore Geoffroy St. Hilaire, who has applied to the phenomenon the appropriate and convenient name of *heterotaxy*, speaks of fifty or sixty well-authenticated examples of it recorded by different observers. He mentions having seen one himself, but relates no particulars of any.

Heterotaxy has hitherto been noticed much oftener in males than in females. This is perhaps a mere accident. Among the twenty-nine instances referred to in this paper, there are eight (including fœtuses) in which the sex is undetermined. Of the remaining twenty-one, sixteen occurred in men, and five only in women†.

Much curiosity has been shewn to learn whether the individuals thus constructed have been *left-handed*. There is no instance recorded, that I am aware of, in which this was known to have been the case; but there are several (those, for example, of John Reid and of Benjamin Stubbington, and those described by Dr. Sampson, Dr. Baillie, and Sir Astley Cooper), in which the fact was ascertained, upon inquiry, to have been otherwise.

This question connects itself, I presume, with two notions very commonly entertained, — namely, 1st, that the greater degree of strength and readiness, which belongs so generally to the right hand and arm, as to have given to the term *dexterity* its peculiar meaning, is a natural endowment, inherent in the human frame; and, 2dly, that this superiority of endowment is determined by some necessity or preference arising out of the unsymmetrical disposition of the internal parts of the body.

The following appear to be the principal grounds of the belief that the prevailing superiority of the right hand is an original gift of nature:—

1. The employment of the right hand in preference to the left is universal throughout all nations and countries. I believe no people or tribe of left-handed persons has ever been known to exist. The investigation of this point, in regard to the inhabitants of the South-Sea Islands, formed a part of the instructions of the French government to Perouse, previously to his last voyage of discovery, of which he never returned to relate the history. Among the isolated tribes of North America which have the most recently become known to the civilized world, no exception to the general rule has been met with. Captain Back has informed me that the wandering families of Esquimaux, whom he encountered in his several expeditions towards the North Pole, all threw their spears with the right hand, and grasped their bows with the left.

In answer to the strong presumption supplied by this fact, it has been thought no unreasonable hypothesis that the habit of using the right hand may have been derived from a common ancestor, in whom it was accidental; and that it has since been transmitted through all nations, from generation to generation, by the mere force of custom or prejudice.

2. Another reason assigned for believing the right hand to possess an original pre-eminence, is, that a similar degree of superior vigour appertains to the right side of the body generally,—that the left leg of an opera-dancer requires twice as much training and exercise as the right,—that we use the right eye in looking along a gun, or through a telescope,—incline the right ear when listening intently to faint or distant sounds, and so on.

But here again it may be argued that a more frequent and habitual exercise of the other dextral limbs and organs, and consequently a greater facility in their use, would naturally follow the greater efficiency and forwardness on all occasions of the right hand, whether that be innate or acquired.

There are many, therefore, who deny that the right limbs possess any original or natural superiority; and who maintain that the difference of power which we perceive between the two sides is altogether acquired by practice. For, they say, it is notorious that the more frequent use of the right hand is in part, and therefore probably it is entirely, the result of training and edu-

* See additional remarks, p. 402.
† Ibid, p. 403.

cation; that it has become the fashion to consider a left-handed person an awkward person; and that to be left-handed in a community of right-handed people, is in some respects a real inconvenience; that children are therefore carefully drilled, when young, into the habitual employment of the right hand for certain purposes; and that the habit thus formed, and the prejudice thus created, not only continue through life, but are diligently inculcated upon the next generation. It is even believed by some that the offspring of a right-handed generation, if left entirely to themselves, would be almost all left-handed, and *vice versâ;* inasmuch as a right-handed nurse carries her infant, for that reason, chiefly on her left arm, and therefore in a position which leaves the left arm alone of the child at liberty to move.

The advocates of the dextral side of the question would probably admit this as a sufficient explanation of the frequent necessity that arises for correcting the sinistral tendency in children.

It has been alleged that the children of left-handed persons are often left-handed; that the disposition is hereditary, and therefore must be inherent. But in such cases it is not unlikely that less than the usual care is employed to correct the peculiar tendency; and even an equal degree of care would in some measure be countervailed by the practical encouragement furnished in the habitual example of the parent.

Whether man be naturally a right-handed animal or not, seems, then, a question neither settled nor easy to be decided If I may venture to express my own opinion on the subject, it is that the dextral tendency is implanted by nature; but that it cannot be very strong, since, in spite of the aid of training, it is so often overcome by slight external influences.

Taking for granted that the faculty of right-handedness is innate, some anatomists have endeavoured to account for it by the way in which the two upper extremities are supplied with blood. The right arm, they conceive, is stronger and more vigorous, because the right carotid and subclavian arteries spring from a common trunk. It is implied in this argument, either that more blood is thus sent to the right than to the left arm, or that it is sent with greater force,—propositions, either of which it would be extremely difficult to prove. Cheselden's view of the matter seems more philosophical. He regarded the difference as a compensating contrivance, and thought that "the advantage which the left arteries gain by going off at an angle much more acute than the right, is made up to the right by their going off together in one branch *." The cause alleged, therefore, namely, the different origin of the arteries, scarcely comes within the notion of a *vera causa*. Many other hypotheses, quite as plausible, and quite as uncertain, might readily be invented. It might, for example, be imagined that as the heart, situated on the left side, is a highly vital organ, this dextral tendency, which throws the right side of the body forwards in defence upon the approach of danger, provides for the better protection of a part so important.

But however this may be, it is plain that observations made upon these examples of heterotaxy are not calculated to determine the question as to the effect of the different mode in which the blood is transmitted from the aorta to the two arms. If, indeed, the individuals of the transposed variety were in all cases left-handed, this would afford a valid presumption that the preference of one hand above the other was not only natural, but some how connected with the relative position of the unsymmetrical parts; but it would not even tend to prove that the manner in which the carotid and subclavian arteries leave the aorta has any thing to do with the matter.

Very little light, however, can be expected to be thrown, by such cases, upon this question of the pre-eminence of the right hand; inasmuch as the tendency, if it be a natural one, is so easily set aside by early care and teaching. I have adverted to the question chiefly to show that, as far as it relates to the way in which the arteries arise, it is perfectly idle and inconsequential.

Neither do the terms *malformation* and *monstrosity* appear to be properly applicable to cases of this nature. Malformation implies a structure that is faulty, as well as uncommon; some defect, or excess, which often renders the organ so malformed less fit for its peculiar function. We do not consider those

* Paley's Theology, c. 11.

individuals to have been malformed, in whom we find several spleens, or a single horse-shoe kidney. In these cases of heterotaxy there is nothing constructed amiss, nothing wanting, nothing superabundant; therefore, nothing monstrous. Every part and organ is as perfect as in the ordinary fashion; and, *à priori*, we can perceive no reason why the viscera should be disposed in the one way rather than in the other. The heterotaxy constitutes a mere *variety;* and as such is strictly analogous to a like phenomenon not unfrequent among certain mollusca. It is well known, that, in most of the spiral shells, the whorls are uniformly twisted from left to right, and that the mouth of the shell, when placed opposite the spectator, lies on the right side of its axis. There are, indeed, some species, and even a few entire genera, which are invariably *sinistral*, or contorted in the opposite direction. But, what alone is to the purpose, there are species in which the reversed direction of the whorls (then called, by conchologists, *heterostrophe*) happens only occasionally, and, as it would seem, by accident. Exceptions of this sort occur in various species of Helix—as in the Helix pomatia, and the Helix hortensis, or garden snail; in the common whelk also, the Buccinum undatum. The whole shape of the mollusca inhabiting these shells presents a corresponding alteration. Now, in creatures of this kind, the variation is displayed externally, and is therefore always noticed; and it seems not an improbable conjecture that a similar anomaly may frequently obtain, though it is less frequently detected, among those orders of living beings in which the irregular parts are concealed within a uniform and symmetrical outside. I know of no authenticated instance of this departure from the standard arrangement among quadrupeds; but I have been told, by a butcher, that it sometimes occurs in sheep *.

By regarding the anomaly in the light of a mere variety, we perceive the unreasonableness of the wonder which has sometimes been expressed, that the subjects of the heterotaxy experience no inconvenience from their peculiar formation, nor enjoy a shorter span of life than others. It would be difficult to conceive a reason why they should. We are not sensible of any advantage, or comfort, from having the heart on the sinister and the liver on the dexter side; and therefore we cannot expect that any embarrassment or uneasiness should arise when that arrangement happens to be reversed.

Still it is not a little remarkable that the altered relation of the viscera should have been so seldom discovered during the life-time of the persons in whom it existed. With the exception of M. Bally's case, and that of the soldier reported in the *Annales de la Médecine et de Physiologie*, I do not know that it has ever been so much as suspected, either by the persons themselves or by their physicians*. That the heart beats beneath the left breast is, however, a fact very popularly known; and it might be expected that any strong pulsations of that organ, such as all persons must sometimes experience under the influence of violent exercise, mental emotion, or bodily disorder, would excite attention, and perhaps alarm, if they were felt on the opposite side of the body. It is less surprising that medical men have not oftener detected this peculiarity of structure. Several of those who were examples of it, appear to have died by violence, or after short disease; and even had they been submitted for some time to medical observation, the true position of the viscera was not likely to be ascertained prior to the invention of the method of auscultation. John Reid suffered no affection of the chest, and no particular examination of that part was made. I imagine, however, that a person versed in auscultation could scarcely fail to satisfy himself respecting the nature of such a case, if once his attention was called to it. It is not enough that the heart can be felt or heard beating on the right side of the sternum; that phenomenon is frequent, as the result of disease, and then denotes a *displacement* of the heart; and it is not unknown as a consequence of malformation, in the strict

* I have been recently informed by a student of King's College, that he had found the thoracic and abdominal viscera transposed in an acephalous kitten. There is a passage in Galen which seems to prove, not only that the ancients were aware of the occasional existence of heterotaxy in the human body, but that they had met with it still oftener in brutes. Ἡπαρ (he says) *προς τουτοις ολιγων μεν επι ανθρωπων, ουκ ολιγων δ'επι αλλων ξωων επιλαμβανειν αυτο των αριστερων μερων αληθως εγραψεν* Ἡροφιλος, *εν αυτῳ τουτω τῳ βιβλιῳ τῳ δευτερῳ των ανατομικῶν.* —C. 8. l. 6. *de Anat. Administ.*

* See additional remarks, p. 403.

sense of that term. Breschet and Otto have described several examples of this anomalous position of the heart, in persons whose other viscera preserved their natural places; and the elder Hoffman's very curious and learned little tract, entitled *Cardianastrophe*, was written to commemorate a like event. On the other hand, there is in the Museum of St. Bartholomew's, a specimen of transposition of the aorta and inferior cava, every thing else being as usual. The aorta lies on the lumbar vertebræ inclining to the right, and the vena cava to the left. Then, to reach the under surface of the liver, the vena cava, in the upper part of the abdomen, crosses over the aorta.

The circumstances which would guide us to a true conclusion are the following:—

1. The occurrence of pulsation on the right of the sternum, in the place and manner corresponding to what is ordinarily observable of the pulsation of the heart on the left.

2. The emission of a resonant sound, under percussion, from the part commonly occupied by the heart on the left side, and the existence of the respiratory murmur in the same part. This is necessary to show that the heart is not simply thrust out of its proper place, by a collection of fluid in the left pleura.

3. A dull sound elicited by percussion over a considerable space in the left hypochondrium; marking the place of the liver there.

4. A tympanitic sound, varying in degree, and perhaps not constant, in the right hypochondrium; denoting, not merely the absence of the liver, but the situation and varying conditions of the stomach.

5. Pulsation of the abdominal aorta felt upon the right side of the mesial line.

If these several signs were ascertained by carefully repeated examinations, no reasonable doubt could remain. In males, some confirmation might be obtained from the greater length of the spermatic cord on the right side: a circumstance very unusual, I believe, under the ordinary formation.

It would be interesting to learn whether the variety be always, or ever, derived to the child from the parent; but upon this point no satisfactory inquiries have yet been made. It has been ascertained, however, in several instances, that other children, born to the same parents, possessed the normal structure. I saw and examined one of Reid's brothers, and found his heart beating under his left breast.

More than one of the subjects of this change happen to have been notorious malefactors, and to have ended their lives upon the scaffold; and hence seems to have arisen the fantastical speculation, that as in them the mechanism of the body was crossly modelled, so, by some sinister and mysterious sympathy, the mental constitution also may have been warped and perverted, and the physical prodigy have been necessarily combined with moral deformity.

If a notion so preposterous could merit a serious refutation, it might be found in the fact that many of the persons similarly fashioned were but little remarkable in their lives, either for good or for evil; while one of them, at least, as we learn from the interesting statement of Sir Astley Cooper, was distinguished for active benevolence and kindness of heart, and passed through a long life in uncommon freedom from the vices most incident to her social station.

Since the foregoing paper was read, I have been favoured with several communications upon the subject to which it relates. Some of these it is proper that I should mention.

Mr. Stanley has pointed out to me, that in the body examined by himself, the most interesting and decisive circumstance, in relation to the completeness of the transposition, was, that the *thoracic duct* presented no deviation from its usual disposition, but took its ordinary course through the chest to its termination in the left side of the neck.

It appears *probable* that the thoracic duct entered the veins on the *right* side, in Sir Astley Cooper's case.

Mr. Stanley observes, that the question of the superiority of the right arm might connect itself with the consideration of the comparative developments, and of the liabilities to disease, of the right and left sides of the body. The following remarks, which occur in a course of General Anatomy, delivered in Paris during the last winter, by M. Serres, furnish matter of interesting speculation:—

"La loi de prédominance du côté droit sur le côté gauche s'applique à tous les organismes.

"Les organes surnuméraires se trouveront de préférence sur le côté droit, tandis que les parties atrophiées, ou même complétement anéanties, siégeront sur le côté gauche.

"Suivons dans la pathologie l'application de ces vues physiologiques sur la prédominance du côté droit sur le côté gauche. Vous verrez sur 20 coxalgies, 18 au moins siéger à droite, et 2 peine à gauche. Chez les enfans dont les testicules ne sont pas descendus dans le scrotum, vous trouverez vingt fois l'arrêt du testicule gauche, et une fois à peine celui du testicule droit."

I am further indebted to Mr. Stanley for the knowledge of three more instances of heterotaxy, observed by M. Scoutetten, and recorded in the *Journal Universel* for April, 1823. I transcribe the following summary account of them from the *Edinburgh Medical and Surgical Journal* for October in the same year:—

"I know not," says M. Scoutetten, "whether I have been favoured by chance, or whether visceral transpositions are more frequent than we generally imagine; but it is remarkable that I have met with three examples of the kind in less than a single year." All the subjects were young soldiers, who had passed their 20th year, were of a good constitution, and enjoyed excellent health till they were cut off suddenly by gastro-enteritic inflammation. In one of them the transposition of the chief viscera *had been detected during life.* The anatomical details present nothing remarkable, except the extreme precision with which the viscera of the opposite sides occupied the places of one another. The arteria innominata supplied the left arm and left side of the neck; yet one of the men was well known to be right-handed. In all of them "the vertebral column turned the concavity of its lateral curvature to the right instead of the left side;" a fact which Scoutetten thinks will contradict the notion of Bichat, that the ordinary curvature of the spine to the left side depends, not on the situation of the aorta, but on the habit of using most frequently the right hand.

Dr. Merriman informs me, that he is at present acquainted with a young woman, in whom this transposition exists: the heart pulsates on the right side, and the liver is palpable on the left. This female was a patient of the late Dr. Nuttall, who discovered the transplacement. She dislikes the notion that she is differently formed from other people, and is therefore unwilling to be questioned upon the subject; but she has permitted Dr. Merriman to make the requisite examination, and he has satisfied himself of the justness of Dr. Nuttall's opinion.

Some of the statements contained in the preceding paper require, therefore, to be altered.

Thus, instead of 29 examples of heterotaxy, I am now able to adduce 33. Among these there are still 8 in which the sex is uncertain. Of the remaining 25, 19 were males, and 6 females.

Also, I have now to add two (making four in all) to the instances in which the anomalous formation was detected in living person.

A CASE OF COMPLETE TRANSPOSITION OF THE VISCERA.

To the Editor of the Medical Gazette.

Sir,

I beg to transmit to you the notes of a case of complete transposition of the viscera. If you deem them sufficiently interesting, you will oblige me by inserting them in your journal.

I am, sir,
Your obedient servant,
Henry Snowden.

Hull, June 8, 1836.

Joseph Parker, aged 15, was admitted into the Hull General Infirmary, April 7th, 1836, under the care of Dr. Bodley, for tuberculous disease of various organs. He died on the 25th of May. The body was inspected thirty hours after death, in the presence of Mr. Huntington, one of the surgeons of the hospital, Mr. Higson, the house-surgeon, and several pupils.

The morbid appearances were such as are usually connected with tubercular depositions; they require no particular notice. But the case was interesting, in presenting to us an example of that altered position of the viscera which is termed "lateral inversion." In the thoracic cavity, the heart and the two-

lobed lung were on the right side; the three-lobed lung on the left. In the abdomen, the liver, with its gall-bladder, occupied the left hypochondriac region, stretching into the epigastrium; the spleen and the great *cul-de-sac* of the stomach were in the right hypochondrium; the œsophagus, passing downwards from the pharynx, inclined to the right side; the first portion of the duodenum ascended from right to left,—the third portion, passing across the spine, terminated in the jejunum on the right side of the second lumbar vertebra; the ilio-colic valve was placed in the left iliac fossa,—the sigmoid flexure of the colon in the right; the greater extremity of the pancreas was towards the left side.

The same uniformity of transposition was observed in the vascular system. As the heart was on the right side of the thorax, so its axis inclined to the same side; the ventricle, which is usually termed right, or anterior, was on the left side, and posterior, occupying the situation of the aortic ventricle, which was to the right, and anterior; the aorta, after its origin, inclined to the left side, but opposite the second cartilage of the ribs, turned from left to right, and continued its course downwards on the right side of the spinal column; the usual number of vessels arose from the arch; the arteria innominata passed to the left side; the vena cava ascendens was on the left side of the spine.

In conformity with the altered position of the large trunks, the distribution of the various branches passing to and from the viscera was changed relatively: the recurrent branch of the pneumogastric nerve was given off on the right side round the arch of the aorta, on the left round the subclavian artery. In fine, the most perfect adaptation was observed throughout.

This case is not unique: one analogous in every respect is related by Dr. Bryan, in the Transactions of the Dublin College of Physicians; another is recorded in the Transactions of the Royal Society of London for the year 1674. There is a preparation illustrative of a third in the Museum of the University of London: of this last, mention is made by Dr. Quain, in his Elements of Anatomy.

TREATMENT OF SORE NIPPLES.

To the Editor of the Medical Gazette.

Sir,

Sore nipples, so often the source of much suffering and misery to the patient, and of serious annoyance to the medical attendant, may, in nine cases out of ten, be healed by the following simple method:—

The white of an egg to be mixed with an equal quantity of brandy, and well shook together in a phial; the nipples to be anointed with a feather dipped into it, until a sufficient coating is formed; and this must be repeated after every time the child sucks.

This coating will be found to protect the nipple when the child is first set on, until the lubrication of the child's mouth renders it no longer necessary; and this protection soon enables nature to effect a cure.—I am, sir,

Your obedient servant,

Edward Greenhow, M.D.
Of North Shields.

Lower Tulse Hill,
June 1, 1836.

CERTIFICATES REQUIRED BY LIFE-ASSURANCE COMPANIES.

To the Editor of the Medical Gazette.

Sir,

If the inclosed short correspondence, which I have recently had with a Life-Assurance Office, is, in your opinion, likely to interest the readers of the Medical Gazette, I beg to place it at your disposal, with a request that you will substitute initial letters for the name of the office, of its corresponding clerk, and that of the gentleman whose health was the subject of inquiry.

Passing by, without comment, the impertinence, and injustice likewise, of the concluding paragraph of the official letter, and the prolixity of the series of questions attached to it, I would solicit your attention to the especial purpose for which professional men are applied to by Insurance Offices, as upon this point the whole matter in dispute between them essentially turns.

Is it, in fact, a mere recognition of

the identity of the party proposing to insure, and a testimony of his general well-being and becoming habits of life, that the medical referee is requested to give, and therefore his reply to the inquiry may, with propriety, be considered as an affair of courtesy only; or is the negociation which is carrying on between the parties, mainly dependent, for its satisfactory completion and the terms on which it is finally arranged, upon the information and opinions which he is solicited to give? If the latter is the case, as may be inferred from the very tenor of the questions put to him, the discussion is still further narrowed to the consideration of which party derives more advantage, and has its interests best served, by full, unreserved, and well-advised answers to them; and is consequently bound, in justice, to give an *honorarium* for the trouble and responsibility which they necessarily involve.

The person insuring, seeks to secure a certain sum to his representatives on the contingency of his death; which object the policy effects, however shortly after its signature his death may happen to take place; and while living, it is to his interest also to have but a small rate of premium annually to pay. The insurer, therefore, is desirous of having his life accepted upon the terms of a select life, and any testimony having a tendency to depreciate its value will be to his disadvantage. The professional referee can consequently serve the insurer, only by painting him *couleur de rose*.

The Insurance Office, on the other hand, conducts its business with a view to profit, and this is equally the case, whether it is founded on the principle of mutual insurance or otherwise, and profit can alone result from the insurer living beyond the estimated period at which the accumulated premiums and accruing interest together exceed the sum insured. To ascertain if the life in question is likely to attain this age, becomes, therefore, an object of especial importance to Insurance Offices, and a sense of this induces these establishments to investigate, not only the present state of health of the party, which their medical advisers could do on their behalf, but to ascertain, moreover, what previous illness the party may have had, and what particular predisposition to disease he and his immediate family connections may have given evidence of, and on the latter points the professional man, habitually consulted by the insurer, can alone give satisfactory information; and when in addition he is requested to give his "opinion" on this point, and his "opinion" on that, to deny him a fee for his services, is as unjust as it is impolitic.

Upon the impolicy of this proceeding I have on another occasion expressed my sentiments without reserve, my experience as a medical officer to a large Life-Insurance Company has given me very numerous proofs of it; and I have felt the truth so strongly, that I was induced some time since to advise the Office with which I have the honour to be connected, to present a fee to the medical gentleman they referred to. The plan I have proposed as, in my opinion, adapted to meet the case fairly, and with due consideration for the protection of the Office from fraud and unnecessary expense, is this: to require a guinea to be deposited with the "declaration;" this sum to be accounted for, and be deducted from the first premium paid, if the life be found insurable, and to be forfeited if considered uninsurable, the Office having been subjected to an equal expense in the reference of the case to its own medical officer.

I remain, sir,
Your obedient servant,
JOHN RIDOUT.

10, Montague-Street. Russell-Square,
June 7, 1836.

"M——— Life Assurance Society,
11th May, 1836.

"Sir,—A proposal having been made to the M——— Life Assurance Society, to effect an assurance on the life of Mr. B. W. L., and the Directors having been referred to you as his usual medical attendant, for information as to his general state of health, I am desired to request that you will, as early as convenient, favour them with answers to the several questions annexed.

"I beg to inform you, that any communication you may be pleased to make will be considered by the Directors as strictly confidential, and will not in any way be suffered to transpire.

"Should the Directors not have the pleasure of hearing from you before the expiration of ten days from the date of

this letter, they will conclude that you decline answering from your not considering the life eligible for assurance.

"I am, sir,
"Your obedient servant,
"H. M.
"Chief Clerk.

"*John Ridout, Esq.*"

[Here follows a string of twenty questions.]

(COPY OF REPLY.)

"10, Montague-Street, Russell-Square,
May 13, 1836.

"SIR,

"I have had the honour of receiving a letter from you, of the date of the 11th instant, requesting me to answer numerous inquiries relative to the health of Mr. L——, for the information of the Directors of the M—— —— Life-Assurance Society.

"I beg you will favour me by acknowledging to those gentlemen my receipt of their communication, and by expressing also my readiness to afford them the assistance they solicit of my opinion on the various points specified in your letter, upon my receiving an assurance that I am consulted by them professionally.

"I have the honour to be,
"Your obedient servant,
"JOHN RIDOUT.

"*To Mr. H. M.*
Chief Clerk."

MEDICAL GAZETTE.

Saturday, June 11, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

THE MEDICAL CHARITIES OF IRELAND.

IF it be true, as we verily believe it is, that a fair estimate may be formed of the civilization of any country, and of its proper position in the social scale, from the state of its medical institutions, what an idea must we entertain of the condition of Ireland. Half civilized, half savage, it presents to the view of the reflecting observer a picture which cannot easily be forgotten: it exhibits in some parts a species of chaotic confusion, the like of which can perhaps no where else be seen.

Until we saw Dr. Borrett's Report—a document which we are sure many of our readers have perused with much interest—we had no notion of the real state of those establishments, called *charitable*, in the sister kingdom: a vague impression was all that dwelt upon our minds—a persuasion that all was not right in that quarter: but the evidence afforded by our correspondent is explicit and complete, displaying a state of things which cannot be too fully exposed to public censure. The rest of Europe perhaps does not afford a parallel to the vile trickery and jobbing, the private intrigue and peculation, practised in many parts of Ireland, under the deceptive guise of ministering to the work of charity. Some few redeeming exceptions may of course be pointed out, but nothing to that extent which would alter the general impression just now mentioned.

Let us take the Dispensaries in the first place. Miserable as is the portion of relief usually afforded to the pauper classes by these institutions, it is found to be most deplorably marred and curtailed by the practices pursued by the managing parties in some districts. Persons frequently get up establishments of this kind for their own private purposes, and no sooner attain their object, than they are guilty of the grossest neglect of duty—in many instances, it is to be feared, of palpable peculation and fraud. Any sort of place seems to serve for the locality—an outhouse—a stable—a filthy barn in a state of dilapidation—in short, anything resembling a covered inclosure: and here the medicines are stowed. Sometimes little else is to be seen in the shape of medicine than a cask of Glauber salts, or a quan-

tity of castor oil; but commonly no more of these, or other articles of a like description, than can be contained in a small cupboard. We must give Dr. Borrett's description of what he saw in some of these precious pharmacies:—

"At Freemont, Elphin, Maynooth, &c. the medicines were spoiling from damp; and, in some instances, not only were no pains taken to preserve them, but the room in which they were kept was in a dirty and slovenly state, or the building in a ruinous condition. This was the case at Tulsk Dispensary, where, owing to the wet dropping from the rotten thatch, or driving in through gaping chinks in the mud-walls, and the wretched condition of the interior, the few ordinary drugs which were found jumbled together in the drawers of a musty press, proved, upon inspection, damp and damaged. At Oyster-haven, the filthy outhouse, which was used for the Dispensary, contained scarcely a pound's worth of medicine. And at Ballyleague, with the exception of some half-dozen shelves put in the corner of the room opposite to that in which the bed lay, there was no arrangement for the Pharmacy—no fittings-up of any kind, neither drawers, cases, nor counter—no apparatus for compounding and dispensing medicines —nor any instruments, weights, or measures. Of the pots and bottles with labels on them, which stood upright on the shelves, many were found, on inspecting them, to contain merely the mouldy remnants of drugs, whose virtues were gone long since, many more to be empty, and others again, where it was possible to recognise their contents, had been misrepresented by the inscriptions set upon them. Three or four packets alone, containing medicines of the common kind, were of a good description: but the greater part of such stock as the establishment possessed, lay strewn upon the ground—bottles, gallipots, jars, and other utensils, mixed with sundry parcels of drugs, lumber, and rubbish. Nevertheless the annual charge for medicines, upon an average of the last three years, amounted to little short of 50*l.*, a sum sufficient for providing an excellent supply of medicines, but which, it would seem, had been applied in part, if not chiefly, to purchasing sundry jars of oil, vinegar, and molasses."

Of the mode in which the medicines are supplied in some places we have also an account. The medical officer, who is generally an apothecary residing in the neighbourhood, and using his shop, on the appointed days, as his Dispensary, is occasionally allowed to charge a specific sum for drugs.

"Sometimes no distinction was made between the stock of private medicines for sale, and those belonging to the institution: or the latter sort were stowed away in the corner of a shop, kept by the medical officer, while those he had upon his own account were well appointed and arranged, and ostentatiously displayed, which led to the impression among the poor applicants, that they had better pay a something for a good article than put up with a bad one. But not only was the trick resorted to of giving the public clearly to understand from appearances, that if they wanted good medicines they must purchase them at the shop, but the fraud was committed of selling the medicines belonging to the Dispensary without putting the money thus obtained to the credit of the charity. I mention this fraud as having been detected, although but in a very few instances; I by no means wish to imply that it was common, or to cast any imputation of the kind upon the medical attendants in general; and I wish as much to be understood when I state, there was at times strong reason to suspect that the pharmacy had been dressed up for the occasion of the visit of the Assistant Commissioners, and drugs procured for exhibition, but which did not belong to the Dispensary."

Where such arrangements are made for dispensing *medicine* to the poor applicants, the *advice* can scarcely be expected to be of a much better description; nor does it seem that regularity of attendance is much practised, or considered very essential. The abuses altogether, we must say, are of a crying nature; but, perhaps, not wholly owing to the conduct of the medical men.

A vile abuse, probably to be found more or less connected with most medical establishments supported by subscription, is carried on in some of the Irish Dispensaries to an enormous extent: we mean the misappropriation of the funds and resources of the institution, in relieving others than the proper objects of the charity. Wealthy farmers and others subscribe, and expect to have, nay insist on having, their children attended during their illnesses, without giving the practitioner any additional remuneration; they think their mite contributed to the Dispensary quite enough. Who can wonder that medical men, thus treated, should soon become negligent of their duties, or that instances should often occur of wretched patients dying for want of the requisite attentions?

It is a most distressing subject for the contemplation of the humane mind, but examples of wretched creatures perishing for want of necessary assistance, are, it seems, fearfully frequent in Ireland. In no other country professing to be civilized, could such instances as those mentioned by Dr. Borrett, in the following passage, be met with. In consequence of the inadequacy of medical relief, and the want of a little accommodation about the Dispensaries, "painful instances," says Dr. B., "have occurred of late, in which persons seized with fever, or cholera, or to whom an accident had befallen, were obliged to be abandoned to their fate—left under a hedge, or in a ditch, or pit, by the road-side, to perish—because there was no place to take them to. If a wandering beggar was taken sick, he had no alternative, in several places, but to lie in the open air. Sometimes the poor would build a hut over him. A man, seized with the cholera, at Bantry, after lying all day in a boat, was put into a store, where he died. A woman, attacked by the same disease, had expired in a ditch!" A bed or two attached to each Dispensary, in order to meet such emergencies, would, in the opinion of the Assistant Commissioners, have prevented all this terrible sacrifice of life.

But it may be said that these were cases more suited to the County Infirmary or Hospital, than to the Dispensary. So they were: but those establishments were afar off; and even though they were nearer, it is not quite certain that they would have been found available in the cases described.

The Irish County Infirmaries, it appears, exclude cases of febrile and internal disorder: they are destined wholly for the treatment of surgical maladies; and even where large infirmaries are established, and many of the beds occupied with patients who could just as well be attended at their homes, Fever Hospitals have to be erected in addition. There are many points connected with these Infirmaries, to which the public attention ought to be more strongly drawn. Of the monopoly in the appointment of the medical officers, possessed by the Irish Coleges of Physicians and Surgeons, we have formerly had occasion to speak; and we are glad to find that Dr. Borrett's view of the case accords with that taken by every unprejudiced and disinterested person. The restriction which secures these County establishments for the members of the Colleges just mentioned, might have been necessary at the time the act of parliament to that effect passed; but sixty or seventy years have since gone by, and there can be no sufficient reason assigned for any longer maintaining so very objectionable a monopoly—excluding, as it does, every surgeon who holds the diploma of the London, Edinburgh, or Glasgow College,—that is to say, the great bulk of the surgical profession in Ireland.

It is not to be denied that some of the

County Infirmaries may be well conducted, and their medical officers men of zeal and ability; but the plan of those establishments has in it much that is radically faulty, and which greatly cripples their usefulness to the public. We have seen that Fever Hospitals have in many instances to be raised in order to meet the ordinary emergency of acute internal maladies; while there can be but little doubt that the object desired might be more economically and conveniently effected, as Dr. Borrett suggests, by converting the two establishments into "one general hospital for the reception of medical, as well as surgical, cases." Physicians and surgeons might then be alike appointed, the beds distributed between them, and all truly necessitous persons admitted, if seriously ill, even without the form of a recommendation, giving a preference always, of course, to accidents and fever cases.

Concerning the mode of managing the funds of some of these well-meant, but ill-organized, institutions, we have much valuable information in Dr. Borrett's Report. The North Charitable Infirmary, at Cork, is a *beau ideal* of the system, which we take to be one heap of abuses. In that establishment the apothecary is all in all—the trustees, treasurer, and governors, nothing.

> "On referring to the book of proceedings, it appears that scarcely any regular meeting of the governors has been held for the last forty years to elect trustees according to the provisions of the Act of Incorporation of 1774; and although this act requires that the accounts should be examined every month by five trustees, they seem for many months together to have been entered in the book at the same time, and frequently in the presence of only one, and seldom more than two, trustees. Indeed, no other signature is to be found in the account-book for several years in succession than that of the late surgeon, who was also a trustee."

The Assistant-Commissioners made two attempts to meet the said trustees at stated times of meeting: but only on the first occasion did they succeed in seeing any one—when they saw the apothecary's son-in-law! It may well be imagined in what manner the affairs of such an Infirmary must be conducted: the details are given in the Report of Dr. Borrett. The *South* Charitable Infirmary seems to be, in every respect, a contrast to its unfortunate brother.

The Lunatic Asylum of Cork must not be passed over in silence: it is, perhaps, one of the most valuable institutions in the province of Munster. We believe that, generally speaking, the Lunatic Asylums throughout Ireland, or at least many of them, principally those in the neighbourhood of the larger towns, are excellently well appointed. Of the one in Cork, we are told, that it contains between 300 and 400 patients, at an annual expense of somewhat above 4,000*l*., and the present physician, it appears, has introduced certain improvements into the management which entitle him to the best thanks of the community.

We cannot at present pursue this subject further: but we once more take leave to recommend Dr. Borrett's report, and particularly that gentleman's Supplementary Remarks and suggestions, as published in our last number. We have only to observe, in conclusion, that if something be not done, and that speedily, to reform the Dispensary system, and much that is connected with the County Infirmaries in Ireland, permanent disgrace must attach to the whole medical body in that country: for the circumstances are now precisely known, and the public will not be slow in forming a decided opinion. The difficulties that stand in the way, and which must be previously removed, are indeed obvious enough: we can very well conceive the stubborn nature of the task which they must grapple with who would attempt to place the Irish on the same footing

as the English Dispensaries: the mass of the people of Ireland labour under destitution and distress; and what is worse, under despondency or recklessness, as regards the possibility of bettering their condition. Such beings must be looked after by others: they cannot be expected to make the least exertion for themselves.

Let, then, the intelligent and humane endeavour to produce a better condition of things; and above all, let the members of the medical profession come to an understanding as to what steps are best to be taken. We venture not to point out the particular measures which it might be most prudent to adopt; but we strenuously recommend the union of the profession in Ireland for improvement and counsel sake. Why, we ask, is there no Provincial Association formed in that country, similar to the excellent one already established here? But on this important point we shall reserve our further remarks for another opportunity.

THE PLAGUE RUMOUR.

Although the silly report that the plague had broken out in London has been officially and very satisfactorily contradicted, we think it right to record the total absence of any thing like a rational foundation for the alarm. How long the rumour might have existed, and what degree of panic might have been excited, it is impossible to say, had not the party who acted as *accoucheur* on this occasion sent to require the assistance of Mr. Poulett Thomson, by which means the monstrous fabrication was strangled in its birth. Sir William Pym was instantly dispatched to examine into the facts, when, behold! certain events which had been confidently stated to have occurred, were discovered to have had no existence whatever but in the overheated and busy imagination of the writer. We trust the party in question (whose name, by the way, is no secret in the medical circles) will be more careful hereafter, else may ridicule not be the sole consequence of his indiscretion.

CLINICAL LECTURE

ON

EXCISION OF POLYPUS UTERI.

Delivered at the Middlesex Hospital.

By Mr. Arnott.

I. *Large thick-necked fibrous Polypus.*

For the removal of polypus uteri, the treatment recommended by Clarke, Gooch, Merriman, and other writers in this country on the diseases of females, is the application of a ligature; and the same doctrine is, I find, inculcated by the lecturers on midwifery. You have lately witnessed another mode of proceeding, and I now revert more especially to the case of Ellen Harris, because it will afford me an opportunity of again directing your attention to the merits of the treatment of polypus by excision, and as it is a good example of the effects and symptoms of the disease. It has shewn also, what difference of opinion may sometimes be entertained of the nature of a growth from the womb previous to its removal.

When she sought admission into the hospital, this woman presented a most wretched appearance. She was extremely emaciated, her countenance bloodless, with a sallow colour, waxy appearance, and haggard expression. She was so weak as hardly to be able to support herself, indeed she only did so by leaning on the arm of a friend, and when she thus came into the admitting room, stooping in her gait, she walked slowly with apparent difficulty and somewhat straddling, and brought along with her a strong urinous odour. To the inquiry of what was the matter, the reply was, that she could not hold her water, and from this answer, her appearance, and the circumstance just mentioned, I suspected that I should have to deal with a case of incontinence of urine from cancer of the womb. But on taking her into the adjoining room, and making the necessary examination, a very different condition of disease presented itself.

On passing the hand towards the vulva the perineum was felt distended, protruded by a large tumor which filled the vagina, and a portion of which, like the vertex in natural labour, shewed itself at the entrance of the passage. The tumor felt firm, fleshy, somewhat irregular, but with a smooth surface: the exposed portion of the size of a crown-piece, had a dark purple almost livid colour, and at one spot was grey and pulpy. There was a copious, sanious, offensive discharge from the vagina; the skin of the labia and perineum was red, and the inner surface of the former somewhat excoriated. This cast, by

M. Talrich, taken the day after the patient's admission, gives a good representation of the external appearances.

Examination gave very considerable pain, but the finger could be carried all round the swelling in the vagina, to which it was not attached except at its upper part. To ascertain the nature of this attachment, the finger required to be passed to its utmost extent, the vagina then was at least of its natural length, and the tumor could not be occasioned by prolapsus uteri, whereby this canal is shortened. The bulk of the swelling was ovoid, but it got narrower above, though still of the thickness of my wrist as high as could be reached. What was it? It must either be a growth from the womb, or that organ inverted. Now the circumstances which chiefly guide us in determining to which of these classes a tumor in this situation belongs, are taken from its sensibility and the history of the case, for there is nothing in the form of the tumor, and, speaking generally, in its relation to the os uteri, essentially distinctive. The inverted uterus possesses common sensibility, and the recurrence of the disease follows almost invariably upon labour. In our case the tumor was pressed and squeezed, and its surface scratched by the nail without the patient being conscious of any of these proceedings. Examination gave pain it is true, but this arose from the inflamed state of the passage, and you will recollect, that when my finger was in the vagina, I called your attention to the fact, that whereas pressure directed towards the parietes of the pelvis caused the patient to cry out, yet on this being directed towards the tumor she did not seem to feel it. The history of the case, too, was not that of inversio uteri but of polypus.

She stated that she was 47 years of age, and the mother of seven children,—the last after a premature labour, six years ago. About four years since she was attacked with what she calls "flooding," which continued for more than a month; and she has ever since menstruated in larger quantity, with clots and pain. For the last six weeks the discharge (sanguine) has been constant. During this period, in making use of the *pot de chambre*, she has had difficulty in rising from it, always feeling as if there was something more to come away. Until Thursday last (six days ago) she has been able, though greatly reduced, to get about; but on the evening of that day, feeling an inclination to make water, she could not, and in straining involuntarily for this purpose, half a potful of blood suddenly flowed, she says, from the back passage, around which, it may be mentioned, were several large piles. During Friday she experienced a constant inclination to make water, but without avail, as she sat on the pot. The only way in which she obtained relief was by sitting on the edge of the bed, so as to press on the perineum and posterior part of the vulva, leaving the anterior part projecting and exposed. By this proceeding small quantities of water were evacuated; and whilst she lay in bed some flowed involuntarily. The urine does not now come freely, but more so than it did. The bowels have acted regularly. Complains greatly of soreness of the vulva.

All the symptoms described in this statement might be accounted for by an inversion of the womb, as well as by a polypus: the menorrhagia first, the continued discharge afterwards, the impediment to the passage of the urine, and the partial relief obtained by sitting on the edge of the bed, so as to press on the perineum, and thereby force the tumor somewhat upwards, and in some measure off the meatus urinarius and urethra. But the important circumstance, in a diagnostic point of view, was the period of their commencement, and that some years after labour, thereby confirming the opinion already deduced from the want of sensibility of the tumor, that it was a case of polypus, and not of inversion.

Being a polypus, what were the relations of its stalk to the os tincæ and neck of the uterus? From the great size of the tumor, that of a pine-apple, or of one of my fists with the other hand clasped over it, and the shortness of its stalk, and being wholly contained in the vagina, it was with difficulty that the os uteri could be got at; and then only on the left side, where its lip, to me apparently healthy, could be felt surrounding this part of the stalk; elsewhere it was so high, that it could not be reached.

Polypi of the uterus are of varied nature; but from its firmness, from its form, and from its size, I was satisfied that the polypus in this case was one of the fibrous kind, or that texture identical with, or very analogous to, the fleshy tubercle of the uterus. But a very different opinion was entertained of its nature by some gentlemen familiar with diseases of the uterus: from the general character and expression of the patient's countenance, from the fœtid offensive discharge, from the dark colour of the tumor where it was exposed, from its knotty feel, from the soft pulpy condition of a part of the surface, and from the habitual soreness and pain when she was examined, it was suspected to be malignant.

Now the countenance was undoubtedly most unfavourable; but bad as it was, I told you at the time that I had seen countenances equally sallow, waxy, and hag-

gard, from continued discharge and simple polypus uteri, without malignant disease. So also with regard to the offensive discharge; wherever you have blood putrefying in the vagina, and uncleanliness, you may have this. The dark colour of the tumor I attributed to blood gravitating to its lower part; and the soft pulpy part was merely a small superficial spot in a state of slough. The fleshy tubercle has not uncommonly a rugged surface, but then it rarely ulcerates: moreover, I have never seen a malignant growth of this size not ulcerated. For an instant a large tumor being felt above the pubis, created a suspicion that there was malignant disease here, either of the womb or ovaries; but on introducing the catheter, upwards of two quarts of water were drawn off, and all swelling here disappeared. The bladder had no doubt been distended for some days, and only the surplus discharged involuntarily, or in consequence of the manœuvre of the patient you have heard described.

The question of treatment now presented itself, and I resolved to excise the polypus, as the *safest* and *most expeditious* mode of proceeding, and also, I believe, the least painful. I say safest and most expeditious; for supposing you had applied a ligature in this case, what were the circumstances, and what was to be dreaded. From the great thickness of the stalk, and its firmness, the ligature would have required a number of days, probably ten at least, to cut its way through; and, during all this time, you would have a putrefying mass in the vagina, which was already irritated and inflamed; and this in a constitution greatly reduced, little therefore able to bear continued irritation, and greatly disposed to suffer from the absorption of purulent matter. I know that there is an idea that the employment of the ligature is a very safe proceeding, and very easy of application. We will grant that it is generally safe; and yet, on close inquiry, I find that even those who use it, acknowledge that cases have occasionally been met with where the ligature, in cutting its way through, has excited irritation and fever, and even death. Two cases have been described to me by the practitioners concerned where this occurred, and, on casually referring to the interesting works of Boivin and Duges, I find two similar ones. In these four cases the ligature was applied to the stalk of the polypus.

With regard to the facility of the application of the ligature, the number of contrivances for effecting this does not coincide with the idea of its being quite an easy thing to do it effectually; but even granting that we have now got in this double canula an instrument for doing so, you need not go far to find evidence that we do not thereby secure accuracy of application. In Dr. Gooch's book, for instance, you will find a case described which occurred in St. Bartholomew's Hospital, and where he seems to have been the operator, when, with the double canula, the ligature was applied to the neck of the uterus instead of the polypus, and death was the result. This is not an isolated instance.

Now, in comparing excision with the ligature, it may be said that the accident last alluded to might occur with the use of the knife or scissars. No doubt it may; and yet I cannot help thinking, that where surgeons employ cutting instruments, they are more likely to ascertain accurately what they are about to divide, than if they use a ligature, which is supposed to be a more innocent affair. Indeed, the chief reason why the ligature has been employed, has, no doubt, been the security it is supposed to afford against hæmorrhage; a security which the practice of the French surgeon, Dubois, has shown not to be infallible. It is the dread of this hæmorrhage, too, which has prevented the general adoption of excision; a dread which is by no means justified by experience. I have never removed polypus uteri otherwise than by excision; and when a pupil at the Hôtel Dieu, I have seen a number extirpated in the same way, and always without hæmorrhage. But the experience of Monsieur Dupuytren, who probably tried this operation more frequently than any other surgeon, is most conclusive on this point. In about 200 cases, he only twice met with bleeding to any extent; in both cases it was quickly stopped by plugging the vagina.

Seeing, then, that bleeding was not to be apprehended from excision, and that by this means a source of irritation which was threatening the patient's life would be immediately and at once removed, I think you will acknowledge the validity of these reasons for the adoption of the mode of operating resolved upon. Owing to some impediment on the part of the patient, the operation was deferred for a couple of days; during which, by the use of opium, wine, and beef tea, and the employment of decoction of poppies, as an injection to wash out the vagina, the condition of the patient, generally and locally, was somewhat ameliorated.

The urine having been drawn off by the catheter, and the patient placed on her back, as in the operation for lithotomy, without being tied up, the polypus was laid hold of by a pair of double-hooked forceps, and drawn downwards steadily. I then introduced my left fore finger beneath the pubis, so as to reach the os uteri in front, and then guiding below this the blades of

a pair of long curved scissars, I proceeded to divide the neck of the tumor on the fore part, by a succession of strokes, (I have already told you the neck was as thick as my wrist) taking care to guard against wounding the vagina as well as the uterus. The anterior part of the pedicle being thus divided, (and that without the patient's experiencing any pain from the division) the tumour could now be drawn over the edge of the perineum, thereby facilitating the division of the other part; for until this was effected, I could not feel the posterior lip of the os uteri, and without this I could not, satisfactorily to myself, complete the section. You will understand the reason of this when I state to you that where a polypus is attached to the cervix and os uteri, the line of division between the two may not be readily perceived, and that the uterus might be cut instead of the polypus, if the operation was carelessly executed. On afterwards introducing the finger into the os uteri, the pedicle of the polypus was found to have been attached to the posterior part of the neck of the uterus, the mouth of which was, of course, of great size, and the lips were tumid and irregular, but not otherwise diseased.

Not a couple of ounces of blood followed the operation; and on visiting the patient in the evening, I found there had not been sufficient discharge to stain a napkin. The day after she was able to make water without the use of the catheter; in a week, the improvement in the patient's countenance, complexion, and feelings, was most striking, and in three weeks the os uteri was found to be restored to its natural size and healthy condition. The patient left the hospital restored to health.

On dividing the polypus, it presented a fibrous texture, of great firmness, but not so hard as the fibro-cartilaginous tumor of the uterus sometimes is. The upper part and middle of the tumor was of a whitish colour, the lower part was of a dark red, from the presence of blood, which occupied the surface, not the centre: it seemed to depend on congestion, probably venous. The section exhibited some tolerably-sized vessels. The small portion of the root left attached to the uterus, and the section of which presented the same fibrous structure as that just described, seemed to have withered, like the umbilical cord in the child, after it is tied.

II.—*Polypus Uteri from dilated Nabothian Glands.*

You have already heard that the majority of cases of polypus uteri are of the fibrous kind, but within the last few days I have had a case in the house, which proves to you that they are not all so.

June 1st.—Lydia Chapman, æt. 36, has had one living child, and a miscarriage. Thee weeks ago, her attention was directed to something protruding from the vagina, unattended by pain, or any disturbance in the uterine function, or in her general heelth. Subject to leucorrhœa, but her menstruation is not in greater quantity than natural. Examination displayed at the entrance of the vagina a whitish tumor, the size of a small pullet's egg, and with a perfectly smooth surface. It felt soft, as if containing a fluid, was pediculated, and on tracing its long and narrow neck, this was found attached to the anterior lip of the os uteri, but in no ways connected with the cervix.

The polypus being transfixed by a tenaculum and drawn down, the pedicle was divided by means of the curved probe-pointed scissars, on a level with the os uteri. Only a tea-spoonful or two of blood followed, and she has since done well. The cut surface of the pedicle was about the size of a fourpenny piece; it presented a mixture of white fibrous tissue, and one or two small cysts, containing gelatinous transparent mucus; and on making a vertical section of the tumor, it was found to consist of one large cyst, filled with the same thick ropy stuff, in quantity equal, perhaps, to three drachms. Here are the two halves of the growth, oval in shape, and, like an egg-shell, preserving their form from the firmness of their parietes; and the contained substance at the bottom of the glass. This polypus, then, is constituted by dilated nabothian glands, forming a striking contrast to the solid fibrous texture of the preceding case. The difference was as great in the symptoms: here there had been no menorrhagia, and the health or appearance was in no ways affected;—this important distinction no doubt mainly depending upon the tumor in the one case having never been in the womb, but only growing from its lip; whereas the other had originally been contained, and had protruded from within this organ. Both cases serve to demonstrate to you that excision of polypi is a safe and legitimate operation.

The operation is best effected by the scissars curved upon the blade, as I show you, and probe-pointed. It is not easy to employ a knife, or a bistoury, whatever may be its form, safely and effectually deep in the vagina.

But you may inquire if I recommend that these growth should be invariably excised? To which I reply, that I think that this ought to be adopted as the general method of operating. I do not mean, however, to declare that there are no cases in which the ligature should not be resorted to in preference; for although I have not witnessed any such, yet I can conceive a case in which this might be

proper: for instance, although the mere thickness of the stalk is no objection to excision,—indeed, it is here especially that excision has the advantage over the ligature,—yet, if on examination I felt some large vessels pulsating in the tumor or its pedicle (which I never have done), I would be disposed probably to resort to the ligature.

In a case analogous to the one I am now about to describe to you, from its interest and connexion with our subject, I would employ the ligature in preference.

III.—*Inversion of the Uterus from Tumor attached to the Fundus.*

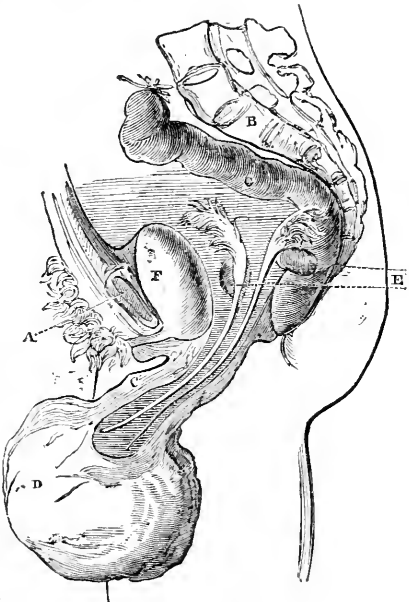
The cast upon the table was taken by Mr. Shaw, from a woman who died in this hospital some years ago, and the plan I now show you represents the parts as seen in the preparation preserved in spirits which I have examined; but I did not see the case during life. Mr. Shaw has favoured me with the following note:—

"The patient was under Mr. Bell. While she lived, the tumor was of very considerable size; when she came first into the hospital, it was more than three times the size of the cast taken after death. A consultation was called to determine on the propriety of an operation. If it were a polypus, where should the ligature be applied? The situation of the os tincæ could not be ascertained: the irregularity on the back part, which resembled it, had no canal into which a probe could be introduced. If the tumor had inverted the uterus, then would the operation be an extirpation of the uterus.

"In the meantime, the patient was full of irritation and complaint; and although she said her 'burthen' or her 'misfortune' was lessening (a consequence of perfect rest), yet she was evidently very ill, emaciated, sick, and distressed with abdominal pain. She died suddenly and unexpectedly at last; and the cause of her death was an ulcer in the right extremity of the stomach, with scirrhous contraction of the pylorus."

Here was a case of inverted uterus from a growth attached to the fundus, which first probably distending the womb, had, when it descended into the vagina, drawn down the fundus, the mechanism being the same as in the more frequent case, when the fundus is drawn down by rude and incautious traction on the cord or placenta after labour; for distension must apparently precede, in order to admit of inversion of the uterus.

There was, it appears, difficulty in deciding on the nature of the case during life; and on looking at the preparation where a section is made, it is certainly not easy to say where the growth (which has



A, Section of the symphysis pubis.
B, Section of the os sacrum.
C, The uterus, inverted and prolapsed.
D, Tumor adhering to the fundus of the uterus.
E, The two ovaria and the fallopian tube.
F, The bladder.
G, The rectum.

a cauliflower shape, and a broad attachment), terminates, and the substance of the uterus commences. Removal of the whole, including the inverted uterus, would necessarily have been attended with opening the cavity of the peritoneum, and therefore I conceive a ligature would have been the best method of operating. Here there would be an object in view prior to the removal of the tumor, and that is, adhesion of the sides of the prolongation of peritoneum, which is drawn down and lines the inverted uterus and vagina. If we could produce this with certainty in any other way, there would be little danger in then excising the map. But the ligature is the only mode which has as yet been tried, and although the proceeding is no doubt a hazardous one, it has been followed by success in cases of inverted uterus.

THE STIMULATING EFFECTS OF COLD WATER.

We find the following curious and amusing letter in the *Indian Journal of Medical Science:* the writer signs himself Davidson, Lakhnáu, April 21, 1835.

Sir,—I have lately read an account of a recovery from the effects of lightning by the application of cold water, in one of the numbers of your journal, and perhaps you will not object to the publication of the following circumstances, which may be relied on as perfectly free from exaggeration.

I was once called by my servants while at Asseergurh, to kill a large powerful snake that was seen on my farm yard. After a really desperate fight I killed a dhàman six feet long, and, as I then thought, smashed it brains to atoms with a heavy solid bamboo. I took it up in triumph, and carried it to the front of my bungalow: as I wished to preserve it, and it had become very dirty, I poured a gharràh of water over its head, when to my great surprise, it immediately began running down the hill, and I had to kill it over again. I believed that the reanimation had been caused by the application of the cold water. Returning from Bombay in 1823, I passed through the cantonments at Jalná, then occupied by Madras troops, I called one morning on Dr. Alexander, who was attached to the horse-artillery, and he told me that he had in that morning's ride rode down and killed a sickly wolf, with his hunting whip. I wished to see it, and was taken to the compound hedge, where the animal to all appearance lay dead. I said, "I'll make that wolf get up and look you in the face." Alexander laughed, and said that he had smashed it's skull with the heavy brass end of his whip, and trailed it lifeless after him for a mile or two. I still persisted that I could re-animate it. At last he said, "Very well, try." Some cold water was procured, and on its being dashed over the skull, the animal got up, rested on it's fore legs, and stared at us both with a most horrid glare! If Dr. Alexander be alive, he will probably remember his astonishment on the occasion.

In consequence of these and similar occurrences, I began to place great confidence in the power of cold water applied to the brain; and I will now relate, in my opinion, a very extraordinary circumstance, which shows that it was not without good cause. Soon after my return one of my chupprassees solicited permission to be absent for a few days for the purpose of visiting a large melá, or fair, held in the middle of a dark and gloomy forest twenty miles to the east of the fortress. Being fond of seeing sights, I determined to accompany him, and after having dispatched a tent, on the second day I rode to a village half way, and slept there during the night; next morning I reached the fair, which was held on an open spot in the centre of the forest. It was a festival in honor of one of those huge striding Hindù deities, who from the peak of the Himalaya placed one foot on a rock in the middle of the fair, and at another step stood on a mountain in Ceylon! There could be no doubt of the fact, as the impression of his foot was still visible on the rock; and it was visited once a year with great reverence by 150,000 innocent 'Hindùs.' Nothing occurred during the day, but in the night I was repeatedly awakened by a simultaneous and universal clapping of hands, in honor of the deity before mentioned, which in the stillness of the forest had a very curious and startling effect.

I got up at day-break next morning, and mounting my horse traversed the fair in all directions, at one time mightily tickled by observing faqueers lying naked on the thorns of the Babúl (most *carefully crushed*), and at another admiring the simplicity of the innumerable devotees who were crawling up and down the hill, to visit the sacred spot. On returning home I perceived at a considerable distance, on the skirts of the fair, two large mobs. I cantered up to the nearest, and instead of seeing some outrageously pious Hindù saint, observed a very stout and handsome young woman, of about 20, lying apparently dead on the ground. I quickly dismounted, and found no signs of life, but warmth of body. There was no pulsation at the wrist, temporal artery, heart, or ankle. On inquiry I ascertained that she had been lying two ghurrees in that state, having fallen down *suddenly* without previous notice or illness. Owing to the mob round her, the heat was perfectly suffocating, and I desired her husband, a grey-headed old man, to clear a large space round her for the sake of air, and I would try to cure her. This he eventually did, with the assistance of other men, but with great reluctance; as he said she had been so long dead that he *must take her to be buried.* She was a Mussulman. I proceeded to examine the body more minutely, and all that I could discover was, that the attack was not epileptic, but might be from spasm.

I called out for cold water, but as none was procurable, I dispatched my groom who brought my servants from my tent with a couple of large gharràhs meant for my morning bathe, which had been cooling all night. The mob was again cleared, and sitting down, I dashed water on the woman's head two or three times, still there was no symptoms of returning life. I tried again and again, and at last one of the eyelids twinkled. Delighted at this, I cleared the ground again, and uncovering her chest, I poured a whole gharràh over her body.

The effect was magical; she suddenly started up with a scream, wiped the water from her face, seized her dishevelled hair, twisting it behind her head, snatched her clothes, and looked round with a stare of astonishment. A loud shout of surprise rent the air, the miraculous cure of the feringee spread like wild-fire through the fair: accompanied by her sister and husband, I walked to my tent surrounded by a dense crowd of admirers! After seating the party in my tent, I rode off to the other mob, where lay the body of a boy of 10 or 12 years of age, surrounded by howling females. I knelt down and found his body also warm, but without pulse; I requested that the mob might be cleared, and offered to try my skill on him, and my request was backed by many who accompanied me from the first scene, but all in vain. I was obliged to leave the poor boy to his fate, and was returning to my tent, which I had scarcely reached, when I saw him carried past with his legs dangling in the air, to be, in my belief, buried alive.

I found my patient's pulse very languid, and therefore gave her a pint of old maderia at a draught, which, 'nothing loth,' she swallowed, just to give a *filip* to the circulation! She slept soundly till sunset, when, without once thanking me, she walked out of the tent.

The fair lasted two or three days after this, during which time I never left my tent without being followed by a mob, and I am persuaded that if I had felt inclined, I might have set up for a prophet without further capital, and procured a lakh of chelas in 24 hours. But you know that is not my vocation!

A year afterwards, when riding through one of the streets of Booraupoor, I overheard a conversation among some Mulsulmans, who were disputing who were the most learned, the Moosulmans or Feringhees? One vehemently backed the feringhees, and swore "Korán ki Kusum that there were none so clever, for with his own eyes he had seen one of them raise a dead woman to life." "Jhooth bát," said another. I laughed; the philo-feringhee jumped up, and roared out "Soobhán Ulláh, there's the sahib himself, ask him. Krores of people saw him do it."

Since that period I have repeatedly stopped fits of epilepsy in people found lying in the streets in different towns by the same means.

NEW MEDICAL WORKS.

The Medico-Botanical Pocket Book. By G. Spratt. 10s. 6d. cloth.

Anatomical Plates of the Muscles. Edited by Dr. J. Quain. Royal folio, 2l. 16s. cloth.

An Inquiry into the Pathology, Causes, and Treatment of Puerperal Fever. By G. Moore. 8vo. 6s. 6d. cloth.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

June 9, 1836.

Charles Pritchett, Bedford.
Benjamin King Johnson, London.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *June* 7, 1836.

Abscess	2	Fever, Scarlet	2
Age and Debility	32	Hæmorrhage	1
Apoplexy	5	Heart, diseased	2
Asthma	2	Hooping Cough	4
Cancer	1	Inflammation	13
Childbirth	2	Lungs and Pleura	4
Consumption	50	Influenza	1
Constipation of the Bowels	1	Insanity	1
Convulsions	18	Liver, diseased	5
Croup	2	Measles	3
Dentition or Teething	8	Mortification	4
Dropsy	16	Small-pox	7
Dropsy on the Brain	11	Tumor	2
Dropsy on the Chest	2	Unknown Causes	22
Erysipelas	1		
Fever	4	Casualties	6

Decrease of Burials, as compared with the preceding week . . 65

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

June, 1836.	THERMOMETER.		BAROMETER.	
Thursday . 2	from 44	to 64	29.73	to 29.59
Friday . . 3	47	68	29.57	29.56
Saturday . 4	50	66	29.53	29.55
Sunday . . 5	44	57	29.63	29.81
Monday . . 6	41	65	29.94	29.92
Tuesday . . 7	47	60	29.88	29.71
Wednesday 8	49	69	29.61	29.57

Prevailing winds, E. by S., and W. by S.

Except the mornings of the 5th, 6th, and afternoon of the 8th, generally cloudy, with frequent rain.

Rain fallen, ·395 of an inch.

CHARLES HENRY ADAMS.

NOTICES.

Will "P." give us his name?—confidentially, if he pleases; though we do not see why he should decline to let it be published.

The College of Surgeons' list next week: we have been obliged to omit it in the last two numbers for want of space.

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SATURDAY, JUNE 18, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XXXVIII.

MERCURY—*continued.*

WE have in this lecture to examine the *uses of mercurials.*

Certain preparations of mercury (as blue pill, calomel, and the *hydrargyrum cum cretâ*), are employed as *purgatives.* They are rarely, however, used alone; being, in general, either combined with, or followed by, other cathartics. Thus it is a common practice to exhibit a blue or calomel pill at night, and an aperient draught the following morning, the object being to allow the pill to remain as long as possible in the bowels, in order that it may the more effectually act on the liver. Mercurial purgatives are administered for various purposes, sometimes as anthelmintics—sometimes to assist in evacuating the contents of the alimentary canal—but more commonly with the view of promoting the secretions, particularly of the liver, or of producing counter-irritation, and thereby to relieve affections of other organs, as the skin or head.

As *errhines* or *emetics*, mercurials are never resorted to now, though formerly the subsulphate was used for these purposes.

As *alteratives*, they are given in small doses in various chronic diseases; such, for example, as dyspepsia, gout, chronic skin diseases, scrofula, &c. Calomel is said to be less beneficial as an alterative than blue pill, on account of its more irritating action on the bowels. The *hydrargyrum cum cretâ* is an excellent alterative.

They are frequently given so as *to affect the mouth*, or to produce *salivation.* Formerly, it was supposed that the beneficial effects of mercury were proportionate to the degree of ptyalism, and thus, to eradicate particular affections, it was thought necessary to cause the evacuation of a given quantity of saliva. "I have heard," says Dr. Wilson Philip, "the late Dr. Monro, of Edinburgh, state the quantity of saliva which must be discharged daily, to eradicate particular affections." Modern experience has proved the incorrectness of this notion; and we now rarely find it necessary to excite a high degree of salivation; indeed, frequently it would be prejudicial, but we sometimes find it requisite to keep up this effect for several weeks, particularly in diseases of a chronic character.

Production of sore mouth and salivation.—One of the most efficacious methods of putting the system under the influence of mercury, is *friction* with the *unguentum hydrargyri;* but the troublesome and unpleasant nature of the process is a strong objection to it in practice, more especially in venereal diseases, in which our patients usually desire secrecy. In the year 1779, Mr. Clare proposed a new method of causing salivation by friction, and which consists in rubbing two or three grains of calomel, or of the protoxide, on the inner surface of the cheeks and gums. It is said that the metal quickly becomes absorbed, and causes salivation, and if care be taken not to swallow the saliva, diarrhœa does not occur. Notwithstanding that Hunter, Cruikshank, and others, have tried this plan, and reported favourably of it, and that it is free from the objections made to the use of mercurial ointment, it has never been a popular remedy. *Fumigation*, as a means of affecting the general system, is an old method of treating venereal dis-

eases. Turner employed for this purpose cinnabar, Lalouette calomel, and the late Mr. Abernethy the protoxide. Baumé used *mercurial pediluvia* to excite salivation, composed of half a grain of corrosive sublimate dissolved in a pint of distilled water, and in a solution of this strength the patient immersed his feet for the space of two hours; several objections, however, exist to the practice, which has been rarely followed. Upon the whole, the most convenient method of producing salivation is by the *internal use of mercurials*, particularly of those preparations which are mild in their local action, as blue pill, calomel, and the *hydrargyrum cum cretâ*.

Treatment before and during salivation.—Formerly the use of mercurials was preceded by antiphlogistic measures, such as blood-letting, purging, and low diet, but they are now rarely resorted to, though useful, by facilitating absorption. Occasionally great difficulty is experienced in affecting the mouth, a circumstance which may arise from the irritable condition of the bowels; and when this is the case you had better resort to inunction, or conjoin opium or vegetable astringents. Sometimes, however, the system appears insusceptible to the influence of mercury, and this may arise from idiosyncrasy, or from the presence of some disease, particularly fever. Emetics and blood-letting are useful in these cases, as they promote absorption; and as the influence of the former depends on the state of nausea produced, tartar emetic will be the best vomit, since it is the most powerful nauseant. Varying the mode of administering the mercury will also sometimes facilitate its operation on the system: thus if you have been employing it internally, try inunction, and *vice versâ*.

During the time that the patient's mouth is sore, he should, if possible, confine himself to the house, use warm clothing, avoid exposure to cold, take light but nourishing food, and regulate the state of his stomach and bowels. If the discharge become excessive, or ulceration of the gums take place, you will of course stop the further use of mercury; and, in order to moderate the effect already produced, let your patient be freely exposed to a cool but dry air, use purgatives and opium, and wash his mouth with some astringent and stimulating liquid. I have generally employed, as a gargle, a solution of the chloride of soda or of lime,—but in the absence of these, a solution of alum, or of sulphate of copper, may be used. With regard to internal remedies, I have no confidence in any as having a specific power of stopping salivation, though sulphur, nitre, iodine, and other substances, have been strongly recommended. Sometimes sulphate of quinia is administered with advantage.

Accidents during salivation.—Occasionally during salivation certain effects result from mercury which are in no way necessary or useful in a therapeutical point of view: on the contrary, some of them are highly prejudicial. Thus sometimes *excessive salivation, with ulceration of the gums*, takes place, as already noticed: not unfrequently *gastro-intestinal irritation* (or actual inflammation) comes on, and which may require the suspension of the use of mercury, or its employment by way of inunction, or its combination with opium or vegetable astringents. I have already noticed *eczema mercuriale*, *mercurial erethysm* of Pearson, and *blackening of the skin*, as other occasional effects. In feeble and irritable habits, mercury sometimes disposes sores to *slough*. Occasionally a kind of *metastasis* of the mercurial irritation is observed: thus swallowing a large quantity of cold water, or exposing the body to cold and moisture, has caused a temporary cessation of salivation, attended with violent pains, or convulsions, or great irritability of stomach.

Diseases for which salivation is employed.—Having offered these general remarks on salivation as a remedial agent, I proceed to notice its use in particular diseases.

(*a.*) *Fever.*—In the first place let us examine its efficacy in fever. It has been said that salivation diminishes the susceptibility to the contagion of fever, whether common or specific; but that it is not an absolute preventive is shown by the fact, that patients under the full influence of mercury have caught fever and died of it, as you will find noticed by my friend Dr. Clutterbuck, in his "*Inquiry into the Seat and Nature of Fever.*" I have several times used mercurials in fever (I speak now of their employment as sialogogues), and, I believe, for the most part, with advantage. I have only used them when there was some marked local determination or inflammatory condition. I have seen three fatal cases of fever in which mercurials were used profusely, without having any effect on the mouth; but in other instances in which the mouth became affected, recovery took place. Whether this was the consequence of the mercurial action, or the salivation was the result of the mitigation of the disorder, cannot be positively asserted, though I think the first more probable. The great indisposition of the system in fever to take on the mercurial action, is frequently a most annoying circumstance. It may sometimes be overcome by the employment of mercurials, both internally and exter-

nally. Mr. Lempriere, who practised in Jamaica, finding that calomel was often exhibited in immense quantities without exciting any apparent action, was induced to employ corrosive sublimate in doses of the eighth part of a grain, with the addition of ten drops of laudanum, and this quantity was repeated every hour, until some affection of the mouth was observed, or until the more alarming symptoms had considerably abated.

Before leaving the subject of fever, I ought to mention, that the beneficial influence of mercurials has been more particularly experienced in the fevers of warm climates, but more especially those of the East Indies; for it has been said by several writers, that in the yellow fever of the West Indies its beneficial effects are not very evident.

(*b.*) *Inflammation.*—Of late years various forms of inflammation have been most successfully combated by the use of mercury, sometimes where other means were of no avail. Hence this mineral is frequently called an *antiphlogistic*. We are principally indebted to Drs. Hamilton (of Lynn), Yeats, and Wright, as also to Rambach, for its use in this form of disease. It is quite impossible to explain its *modus operandi*—that is, to refer its influence to any other more general mode of operation. To say, as some have done, that mercury acts by equalizing the circulation — that is, by diminishing the quantity of blood in the inflamed part, by increasing it in other parts of the body, is a very unsatisfactory, and too mechanical a mode of explanation, and one, moreover, which is open to several objections.

It has been stated that mercury may be employed in every disease whose name ends in *itis;* but it is not equally serviceable in all. However, some difficulty is experienced in attempting to generalise; that is, to point out in what circumstances those inflammations agree which are benefitted by it. It appears, however, that the *nature of the tissue,* and the *structure of the organ affected,* as well as the *kind* of inflammation, are points of considerable importance as affecting its use.

Thus it appears that inflammations of *membranous tissues* are those principally benefitted by a mercurial plan of treatment; and more especially those in which there is a tendency to the exudation of coagulable lymph, or of serous fluid—as meningitis, pleuritis, pericarditis, and peritonitis (particularly of puerperal women). In inflammation of the lining membrane of the air-tube, but more especially in croup, or as it is sometimes termed, plastic inflammation of the larynx, mercury is one of our most valuable remedies; and as this disease is one which terminates rapidly, no time should be lost in getting a sufficient quantity of mercury into the system. Calomel is usually employed; but when the bowels are very irritable, the *hydrargyrum cum cretâ,* or even mercurial inunction, may be resorted to. In inflammation of the tunics of the eye, particularly iritis, mercury (next to blood-letting) is the only remedy on which much confidence can be placed; and we use it not merely with a view of putting a stop to the inflammatory action, but also in order to cause the absorption of the lymph already effused. In inflammation of the synovial membranes, mercury has been employed, and in some cases with manifest advantage.

The *structure of the organ* influences the effect of mercury: at least it is well known that this mineral is more beneficial in inflammation of certain organs (the liver, for example) than of others; and we refer it to some peculiarity in the structure of the part affected. In hepatitis of either temperate or tropical climates (particularly of the latter), mercury is advantageously employed: blood-letting, however, should be premised, particularly in the disease as usually met with in this country. In peripneumonia, more especially when hepatization has taken place, the best effects have sometimes resulted from its use; of course, after the employment of blood letting. In inflammation of the substance of the brain, also, this mineral may be advantageously resorted to, after the usual depletives.

The *nature* or *quality of the inflammation* also influences the effects, and thereby the uses, of mercury. Thus, in syphilitic inflammation, mercurials are of the greatest utility; less so in rheumatic inflammation; still less in scrofulous; and most decidedly objectionable in cancerous or scorbutic diseases. The treatment of rheumatism by calomel and opium has found many supporters; and, undoubtedly, when the febrile action does not run too high, or when the pericardium becomes affected, calomel, preceded by blood letting, will be found serviceable. The scrofulous habit is for the most part unfavourable to the use of mercury, given as a sialogue, but there are cases in which it is not only admissible but serviceable—as scrofulous ophthalmia, when of an acute kind. In all diseases of a malignant character, mercurials are highly objectionable.

(*c.*) *Venereal diseases.* — It was formerly the opinion of surgeons that the symptoms of venereal diseases were progressive, and never disappeared until mercury was administered; but it has, of late years, been clearly proved that this notion is erroneous: and we are indebted to some of our army surgeons—namely, to Messrs. Ferguson, Rose, Guthrie, Hennen, and

Bacot, and to Dr. Thomson—for showing that the venereal disease, in all its forms, *may* be cured without an atom of mercury. Moreover, it is fully established by the experience of almost every surgeon, that while in some instances mercury exercises a beneficial influence hardly to be observed, with respect to any other disease or any other remedy, yet, that in some cases it acts most injuriously; and it is generally supposed, that many of the bad venereal cases formerly met with, arose, in great part, from the improper use of mercury. It is a point, therefore, of considerable importance, to determine what cases are best adapted for a mercurial, and what for a non-mercurial, method of treatment; for in admitting the *possibility* of a cure without this agent, it is not to be inferred that the method is either *eligible* or *expedient*;—nay, the very persons who have proved this possibility, admit that in some cases this mineral, given so as to excite moderate salivation, is advisable. It is not, however, easy to lay down rules; and, unfortunately, practitioners are not agreed on the circumstances indicating or contra-indicating its use. Mr. Carmichael relies principally on the eruption, and, next to this, on the appearance of the primary ulcer; and, of the four forms of the venereal disease which he has described—namely, the *papular*, the *pustular*, the *phagedenic*, and the *scaly*—full courses of mercury are required, he says, in one only—namely, the scaly; in which the primary sore is the Hunterian chancre, or callous ulcer, and the eruption partakes of the characters of lepra, or psoriasis. You will find these criteria good, as general ones, but they are not absolute; for, in the first place, it has been satisfactorily proved by the experiments made in the military hospitals, that even this scaly form of the disease may get well without mercury; and, secondly, in the papular and pustular forms, you will sometimes find mercury a most valuable agent; and I have seen several cases of the papular variety which speedily got well under its use, though they had resisted other modes of treatment. Perhaps the best general rule to follow, and one sanctioned by Hennen, Rose, Guthrie, and Thomson, is, to use moderate quantities of mercury whenever the disease does not readily subside under the use of ordinary methods of treatment.

Several circumstances affect the use of mercury in this disease, and of these I may notice the following:—

(α.) *Scrofula.*—Some of the worst forms of the venereal disease that I have seen have occurred in scrofulous subjects; and it has appeared to me, that in what I may call venereo-scrofulous disease, mercury is rarely serviceable, but, on the contrary, generally prejudicial. One case which fell under my notice was that of a medical student, who, after three years suffering died, having been made much worse on two occasions by what I conceived to be the improper use of mercury: once, by his own act; and a second time, by the advice of the surgeon of his family.

(β.) *Condition of the ulcer.*—Another point deserving your attention in deciding on the use of mercury, is the condition of the primary sore: if it be much inflamed, or of an irritable nature—if it be of the kind called phagedænic, or at all disposed to slough—mercury must be most carefully avoided, as it increases the disposition to sloughing. In one case that fell under my notice, a gentleman lost his penis by the improper use of mercury, under the circumstances just mentioned.

(γ.) There are various other conditions which contra-indicate the use of mercury, such as great *debility* or *irritability of system*,—when there is *much inflammation of the throat*,—and, according to Dr. Hennen, in *affections of the bones* during the stage of periostitis.

(*d.*) *Cholera.*—Writers on the spasmodic cholera, both of this country and of India, speak for the most part favourably of the effects of mercury, especially in the form of calomel. I may refer to the works of Drs. Johnson, Venables, and Hamett, and of Messrs. Annesley, Orton, and Searle, for evidence on this point. Drs. Dickson and Rankeen, indeed, appear to regard it as a useless remedy; but I have met with no writers who attribute ill effects to it. Unfortunately those who advocate its use are not agreed as to the dose, or frequency of repetition; some advising it as a purgative; some as a sedative, in combination with opium; others, lastly, using it as a sialogogue. It is deserving, however, of especial notice, that when salivation has taken place, the patient has in general recovered; but in the worst cases this effect could not be produced. I shall have some further remarks to make on this subject when I speak of calomel.

(*e.*) *Dropsy.*—In this disease mercurials may do either good or harm. Thus when the dropsical effusion depends on inflammation, they may be employed with the best effects, as when hydrocephalus arises from meningitis, or hydrothorax from pleuritis. When ascites is occasioned by an enlarged liver, which, by causing compression on the vena portæ, gives rise to effusion, mercurials are sometimes beneficial. On the contrary, when dropsy occurs in old subjects, and when it depends on, or is accompanied by, debility of the general system, salivation is almost always hurtful. Moreover, when the effusion

arises from mechanical causes not removable by mercury, as obliteration of any of the venous trunks, or pressure of malignant tumors, salivation is hurtful. Occasionally dropsical effusion takes place without any appreciable cause, and then, of course, if mercury be employed, it must be in part on speculation.

(*f*). *In chronic diseases of the viscera*, especially those arising from or connected with inflammation, mercury is frequently serviceable. Thus, in enlargement or induration of the liver,—in hepatization of the lungs, &c. In those diseases commonly termed malignant, as cancer and fungus hæmatodes, and also in diseases of a non-malignant character, but occurring in debilitated subjects, mercurials, given so as to excite salivation, are objectionable.

(*g*.) *Chronic affections of the nervous system.*—Mercury has been recommended in paralysis, and on some occasions has proved exceedingly efficacious. I have only seen one marked case of relief, or rather, I ought to call it, complete recovery: the patient (a young man) was kept under the influence of mercury for two months, by the advice of two physicians who attended the case with me. When paralysis arises from lead, Dr. Clutterbuck has occasionally found mercury useful. In tetanus, mania, epilepsy, hysteria, tic douloureux, and other affections of the nervous system, mercurials have been used, and now and then with apparent benefit.

(*h*.) *Against parasitical animals.*—Mercurials are sometimes used to destroy parasites both of the skin and alimentary canal. I have already mentioned that they have no specific efficacy against worms.

I do not think it necessary to enter into any further details respecting the uses of mercurials generally; and I, therefore, proceed to notice the preparations of this metal individually.

MERCURIALS PREPARED BY TRITURATION.

History.—I now proceed to notice those *mercurial compounds prepared by triturating metallic mercury with another substance.* Some of these have been long in use; for Aristotle says that by mixing mercury for a long time with saliva, a remedy is formed which is useful in certain cutaneous diseases. Under this head I shall examine the following compounds:—*Hydrargyrum cum cretâ*: *hydrargyrum cum magnesiâ*; *pilula hydrargyri*; *unguentum hydrargyri*; and *emplastrum hydrargyri.*

Theory.—Chemists are not agreed as to the state or condition of the mercury in these preparations. Some consider the metal to have undergone no chemical change, but merely to have become very finely divided. Berzelius, Dumas, Guibourt, and Geiger, may be mentioned as supporters of this opinion. Others, Mr. Donovan for example, think that by trituration a small portion of the protoxide of mercury is formed, and that this is the active ingredient. Lastly, Mr. Phillips has suggested that they may contain a suboxide. One fact seems to be quite certain: the greater part, if not the whole, of the mercury is in the metallic state; and I am inclined to believe that the presence of any oxide of mercury is not essential.

1. *Hydrargyrum cum Cretâ.*

History and synonymes.—This compound (called also *mercurius alcalisatus*, or *æthiops absorbens*,) is first mentioned, I believe, by Burton, in 1738.

Preparation.—It is prepared by rubbing three ounces of mercury with five ounces of chalk, until globules are no longer visible. On account of the tediousness of the process, it is usually prepared by steam power: a cannon ball being made to revolve constantly in a large mortar containing the chalk and mercury.

Theory.—If this powder be digested in acetic acid, the lime of the chalk is dissolved, and the carbonic acid escapes; but the mercury is totally insoluble in the acid, and hence it is not the protoxide. If examined by a lens, the residuum is found to consist of minute separate globules, which readily whiten silver and gold, shewing they are in the metallic state. Hence it would appear the trituration effects no chemical change on the mercury.

Properties and characteristics.—It is a greyish powder, which effervesces on the addition of acetic acid, yielding a solution of lime, which may be distinguished by the tests for the calcareous salts already mentioned. By digestion in nitric acid, we obtain a solution known to contain mercury by the characters already mentioned for the mercurial preparations generally.

Composition.—It consists of—

Carbonate of lime	5 parts.
Finely divided metallic mercury	3 parts.
	8

Physiological effects.—This is an exceedingly mild mercurial preparation; in full doses it acts as a gentle mild laxative, and sometimes creates a little sickness. The chalk, of course, renders it antacid. By repetition, it occasions the constitutional effects of mercury already described.

Uses.—It is frequently employed as an *alterative* in children of a scrofulous habit, and in disorders of the digestive organs, in which we wish to produce a slight affection of the system with the least possible

annoyance to the alimentary canal. It is sometimes employed as a *sialogogue*, in children and in adults. Thus it is given to infants born with syphilitic eruptions.

Dose.—For an adult the dose is from five grains to a scruple, or half a drachm.

2. *Hydrargyrum cum Magnesiâ.*

Under this name there is a compound in the Dublin Pharmacopœia, prepared by rubbing mercury with manna until the globules disappear, and then washing out the manna with water, and adding subcarbonate of magnesia. Its effects and uses are analogous to the preparation just described.

3. *Pilula Hydrargyri.*

History.—The oldest formula for mercurial pills is that of Barbarossa (at one time admiral of the Turkish fleet, and afterwards governor, or king, of Algiers), and which was communicated, by him, to Francis the First, king of Franconia, who made it public. The common name for this preparation is *blue pill*, or *pilulæ cæruleæ*.

Preparation.—It is prepared by rubbing two drachms of purified mercury with three drachms of confection of roses, until globules are no longer visible, and then adding a drachm of powdered liquorice-root. The trituration is usually effected by steam power.

Theory.—By trituration, the metal is reduced to a finely-divided state, and becomes intimately mixed with the confection and liquorice powder.

Properties.—It is a soft mass, of a convenient consistence for making into pills, and has a dark blue colour. When rubbed on paper, or glass, it ought to present no globules.

Composition.—Three grains of this pill mass contain one grain of mercury. If any sulphuric acid should have been added to the confection, to brighten its colour, some subsulphate of mercury will be formed; a compound which is very energetic, and, therefore, great care should be used to obtain pure confection.

Physiological effects.—In full doses (as fifteen grains) it frequently acts as a purgative. In small doses it is alterative, and, by repetition, produces the constitutional effects of mercurials generally, and which I have already described. It may be regarded as a mild, and, at the same time, most useful preparation.

Uses.—To purge the bowels, the practice of giving a blue pill at night, and a senna draught the following morning, has become somewhat popular, in consequence of its being recommended by the late Mr. Abernethy, in various disorders of the chylopoietic viscera. As an alterative, in doses of two or three grains, it is frequently resorted to. Lastly, it is one of the best internal agents for exciting salivation, in the various diseases to which mercury is adapted.

Administration.—The usual mode of exhibiting it is in the form of pill, in the doses already mentioned; but it may also be administered when suspended in a thick mucilaginous liquid. If the object be to excite salivation, we may give five grains in the morning, and from five to ten in the evening; and to prevent purging, opium may be conjoined.

4. *Unguentum Hydrargyri.*

History and synonymes.—Mercurial ointment was known to, and employed by, the ancient Arabian physicians—for example, Abhenguefith, Rhazes, and Avicenna: so that it has been in use certainly 1000 years. However, Gilbertus Anglicus, who lived about the commencement of the thirteenth century, was the first who gave a detailed account of the method of extinguishing mercury by fatty matters. Besides its more common appellation of *mercurial ointment*, it was formerly termed *blue*, or *Neapolitan ointment*. According to the French new pharmaceutical nomenclature, its name is *Liparolé de mercure.*

Preparation.—It is prepared by rubbing one part of mercury with one part of fatty matter (lard, with a small portion of suet), until globules are no longer visible. To promote the extinction of the mercury, the metal should be previously triturated with some old mercurial ointment. Rancid lard also assists the extinction of the globules.

Theory.—Some assert that the mercury is in a finely-divided metallic state, though, if well prepared, there are no appearances of globules, when the ointment is examined by a lens. In favour of this view Guibourt states, that by digesting æther on mercurial ointment, the fatty matter may be dissolved and liquid mercury obtained, in weight equal to that used in making the ointment. Now it is unlikely, if the mercury had been previously oxidized, that the æther could deoxidize it; and therefore, this experiment, (supposing the results to be those mentioned) appears almost decisive that the mercury is in the metallic state. Mr. Donovan, however, thinks that part of the mercury attracts oxygen, and that the oxide thus formed unites with the fatty matter. I have seen no satisfactory explanation of the efficacy of old mercurial ointment in extinguishing the mercury; Guibourt offers the following:—By trituration, both lard and mercury assume

oppositely electrical states, the lard becoming negative, the mercury positive; these states, he supposes, determine a more intimate mixture of the particles, and a greater division of the mercury. Now rancid lard and old mercurial ointment, having attracted oxygen from the air, more readily take on the negative condition, and hence their efficacy in promoting the extinction of the mercurial globules. Guibourt also asserts, that mortars of marble or wood are better adapted for making this ointment than those of metal, on account of their power of conducting electricity being less.

Properties.—It is an unctuous fatty body of a bluish grey colour, and if properly prepared, gives no traces of globules when rubbed on paper, and examined by a microscope.

Composition. — In the London Pharmacopœia there are two mercurial ointments, a stronger and a weaker: the first contains 30 grains, the second 10 grains, of mercury, in every drachm.

Physiological effects.—Mercurial ointment possesses very little power of irritating the parts to which it is applied; but whether swallowed or rubbed into the integuments, readily produces the constitutional effects of mercury. Thus Cullerier says, that three or four pills, containing each two grains of this ointment, and taken successively, have often sufficed to excite violent salivation. He also states, that if the object be to produce salivation, in a very short space of time we may effect it by giving half a drachm of the ointment in the space of 24 hours.

When rubbed into the surface of the body, it produces the same constitutional effects as the other preparations of mercury; but if the lard which it contains be not rancid, no obvious local effect is usually produced. Applied to ulcerated surfaces, mercurial ointment is a stimulant, and in syphilitic sores is oftentimes a very useful and beneficial application.

Uses.—It is rarely or never administered *internally* in this country, and yet I could quote a number of good continental authorities who speak of its advantages in the highest terms. It certainly well deserves a trial where the system appears insusceptible to the influence of mercury; for Cullerier says, the difficulty with him has been rather to check than to excite salivation by it.

Applied *externally*, it is employed either as a local or constitutional remedy. Thus as a *local* agent it is used as a dressing to syphilitic sores, or rubbed into tumors of various kinds, (not those of a malignant nature, as cancer and fungus hæmatodes), with the view of exciting the action of the lymphatic vessels. Sometimes, also, it is employed to destroy parasites on the skin. As a *means of affecting the constitution* we use mercurial inunctions in syphilis; in inflammatory diseases, and, in fact, in all the cases (already noticed) in which our object is to set up the mercurial action in the system, more especially when the irritable condition of the digestive organs offers an objection to the internal employment of mercurials. It may be laid down as a general rule, that mercury may be used with more safety by the skin than by the stomach; but reasons of convenience, which I have already alluded to, frequently lead us to its internal use.

Administration.—Internally, it is given in doses of from two to five grains, made into pills, with either soap or some mild powder, as liquorice. Externally, when the object is to excite very speedy salivation, half a drachm may be rubbed into the skin every hour, washing the part after each application, and varying the seat of application. If, however, it be not desirable or necessary to produce a very speedy effect, half a drachm or a drachm rubbed in night and morning, will be sufficient. In making use of mercurial frictions, it is to be recollected they ought not to be violent, but long continued, and had better be carried on near a fire, in order to promote the liquefaction and consequent absorption of the ointment. In syphilis, and other diseases in which our sole object is the constitutional affection, it matters little to what part of the body the ointment is applied, provided the cuticle be thin (for this inorganic layer offers an impediment to absorption in proportion to its thickness). The internal parts of the thighs are usually, therefore, selected. However, in liver complaints, the inunctions are usually made in the region of the organ affected. The occasional use of the warm bath promotes the action and absorption of the mercury when the ointment is applied to the skin.

Linimentum Hydrargyri.—This is prepared by mixing mercurial ointment with lard, camphor, and solution of ammonia. It is used (by way of friction) in chronic tumors, chronic affections of the joints, &c., where the object is to excite the action of the lymphatic vessels. It is usually stated in books, that it more readily causes salivation than the common mercurial ointment, and which Dr. Paris attributes to the stimulating properties of the camphor and ammonia; but though I have frequently used it, I have never seen evidence of the truth of this statement.

5. *Emplastrum Hydrargyri.*

In the London Pharmacopœia, this is ordered to be prepared by rubbing three ounces of mercury with a fluid drachm of sulphuretted oil until the globules are no longer visible, and adding a pound of melted lead plaster. In this process, the sulphur of the sulphuretted oil forms with the mercury a sulphuret, while the remainder of the metal is mechanically divided. Each drachm of the plaster contains fifteen grains of mercury.

It is supposed to stimulate the lymphatic vessels of the parts to which it is applied, and is used as a discutient in glandular enlargements and other swellings, whether venereal or otherwise, and also to the region of the liver in hepatic complaints. Dr. Wilson Philip has seen it induce salivation.

Emplastrum ammoniaci cum hydrargyro.—This is prepared in a similar manner to the last preparation, except that the gum-resin ammoniacum is substituted for the lead plaster. It is a more powerful compound than the last, and is employed in the same cases, especially in venereal buboes.

OXIDES OF MERCURY.

1. *Protoxide of Mercury—Hydrargyri cinereum oxydum* (Ph. L.)

The synonymes for the protoxide of mercury are—*suboxide, grey, black,* or *ash-coloured oxide.*

Preparation.—In the London Pharmacopœia it is prepared by adding one ounce of calomel to a gallon of lime water, washing the precipitate which is produced, and drying it. A weak solution of potash may be substituted, with advantage, for the lime water.

Theory.—Calomel is the protochloride of mercury,—lime is an oxide of calcium. When these two compounds come in contact, double decomposition takes place: chloride of calcium is formed in solution, while protoxide of mercury precipitates.

Reagents.	Results.
$\dot{Ca}$	Ca Chl
Hg Chl	$\dot{Hg}$

The protoxide of mercury is usually mixed with some undecomposed calomel.

Properties.—Pure protoxide of mercury is black, or nearly so. The present preparation, however, is frequently greyish, owing to the presence of some undecomposed calomel. It is readily decomposed by light (especially by the solar rays), being resolved into metallic mercury and the peroxide, and becoming of an olive colour. It is odourless and tasteless.

Composition.—The officinal preparation varies in its composition. It consists essentially of the *protoxide of mercury,* but frequently mixed with varying quantities of *metallic mercury, peroxide,* and *protochloride.*

Protoxide of mercury consists of—

	Berzelius.		*Thomson.*		*Turner.*	
Mercury......	2 atoms	= 202·86	2 atoms	= 200	1 atom	= 202
Oxygen......	1 atom	= 8·01	1 atom	= 8	1 atom	= 8
		210·87		208		210

Physiological effects.—Pure protoxide of mercury is one of the least irritating of the mercurial preparations, and, therefore, when swallowed, does not produce much disorder of the alimentary canal. When taken in repeated doses, its constitutional effects are similar to those of mercurials generally.

Uses.—Mr. Abernethy employed it as a fumigating agent. The following are his directions for using it:—place the patient in a vapour bath, in a complete suit of under-garments, with a cloth around his chin. Two drachms of the oxide are then put on a heated iron within the machine in which the patient is sitting. After continuing in the bath for about fifteen or twenty minutes, the body is found to be covered with a whitish powder. The patient should be put to bed, and lie in the same clothes till morning, and then go into a tepid bath. By this mode of proceeding, Mr. Abernethy says he has known salivation induced in forty-eight hours.

Protoxide of mercury is rarely employed as an internal remedy; indeed, its varying composition is a strong objection to its use. When exhibited, it may be given in doses of from one to four or five grains. As an external application, it has been used in the form of *ointment,* and also suspended in a weak solution of chloride of calcium, under the name of *black wash.*

Ointment of the protoxide of mercury.—This is prepared by mixing one part of the protoxide with three parts of lard; and is intended to be a substitute (of a fixed strength) for the common mercurial ointment. According to Mr. Donovan, this ointment should be kept at a temperature

of 350° F. for the space of two hours, in order that the oxide and fatty matter may enter into union.

Black wash, called also *Lotio nigra*, *Aqua mercurialis nigra*, and *Aqua phagedenica mitis*, is prepared by adding calomel to lime water. The proportions of the ingredients may be varied, but in general they are one drachm of calomel to a pint of lime water. In consequence of the double decomposition which takes place between the calomel and the lime, protoxide of mercury and chloride of calcium are formed: the first precipitates, the second remains in solution. As the efficacy of the wash depends principally, if not wholly, on the oxide, the bottle must be well shaken every time previously to using it. It is a favourite application to venereal sores of almost all kinds,—in most being serviceable, in few being hurtful.

2. *Peroxide of Mercury.*

There are two preparations of this in the Pharmacopœia,—namely, *hydrargyri oxydum rubrum*, and the *hydrargyri nitrico-oxydum*.

(*a.*) *Hydrargyri Oxydum Rubrum.*

History and synonymes.—Geber gives a good account of the method of making this substance, and of the failure of his predecessors, whose errors he points out. He regards it as *coagulated mercury*. It has had other appellations, such as *hydrargyrum calcinatum*, and *mercurius præcipitatus per se*.

Preparation.—It is prepared by exposing mercury to a prolonged heat of about 600° in a tall glass vessel with a narrow mouth and broad bottom. The process is a very tedious one, occupying several weeks,—so that Geber's remark was correct, that "it is a most difficult and laborious work, even with the profoundness of clear-sighted industry." The apparatus which Mr. Boyle contrived for the manufacture of it was long termed "*Boyle's Hell*," from a notion that the mercury was tortured in it.

Theory.—The heat vaporises the mercury, which in this state attracts oxygen from the air, and forms this red or peroxide. The long neck of the vessel prevents the escape of the vapours or newly-formed oxide.

Properties.—It consists of small crystalline red scales or grains, which are odourless, but have an acrid metallic taste. It is slightly soluble in water. When heated, it first deepens in colour, and, by an increase of heat, is decomposed into mercury and oxygen. It is soluble in hydrochloric acid, forming corrosive sublimate.

Composition.—Peroxide of mercury consists of—

	Berzelius.	*Thomson.*	*Turner.*
Mercury......	1 atom = 101·43	1 atom = 100	1 atom = 202
Oxygen......	1 atom = 8·01	1 atom = 8	2 atoms = 16
	109·44	108	218

The *effects*, *uses*, and *administration*, are similar to the preparation which I have next to examine. Its dose is from half a grain to two grains.

(*b.*) *Hydrargyri Nitrico Oxydum.*

History and synonymes.—This preparation is said to have been known to Raymond Lully, in the latter part of the 13th century. It is commonly termed *red precipitated mercury*, or, for shortness, merely *red precipitate*.

Preparation.—It is prepared by dissolving mercury in diluted nitric acid, and evaporating the solution to dryness. The residuum is then to be heated in a shallow vessel until red vapours are no longer given out. The latter part of the preparation requires some little nicety, in order that the product may have a shining scaly appearance. In one chemical manufactory, in which I saw the process going on, the "shallow vessel," before alluded to, was nothing but a common earthenware dish (commonly termed a *pie-dish*), and which was placed in a sand bath, and had another dish of the same size and shape inverted over it.

Theory.—Part of the nitric acid oxidizes the mercury;—binoxide of nitrogen escapes—and the peroxide of mercury which is generated, unites with some undecomposed nitric acid, to form the bipernitrate.

Re-agents.	Results.
$3\ Hg$	$2\ \ddot{N}$
$8\ \overset{\therefore\cdot\cdot}{N}$	$3\ \ddot{H}g\ 6\ \overset{\therefore\cdot\cdot}{N}$

When this bipernitrate of mercury is exposed to heat, the nitric acid is for the most part given out, and peroxide of mercury left behind.

Properties.—It occurs in bright red crystalline grains, which are slightly soluble in water; Dr. Barker says, that 1000 parts of boiling-water did not take up more than 0·62 of this oxide. The other properties of this oxide are the same as those of the last preparation.

Composition.—As already mentioned, it consists principally of peroxide of mercury. Mr. Brande states, that 100 lbs. of

mercury yielded, at Apothecaries' Hall, 112 lbs. of this nitric oxide of mercury. This would shew that about four pounds of nitric acid are not driven off. It is to this acid, which must be in combination with some oxide, that the nitric oxide of mercury is supposed to owe its scarlet colour.

Adulteration.—Oxide of lead is the only probable adulteration: this might be readily detected by heating the suspected compound before the blow-pipe on charcoal, when a globule of metallic lead will be left behind, whereas the whole of the mercury will be volatilized.

Physiological effects.—Peroxide of mercury is an energetic local irritant, though perhaps somewhat less powerful than corrosive sublimate. When swallowed *in large doses*, it produces inflammation of the stomach and bowels, manifested by nausea, vomiting, purging, and the usual appearances after death. Whether applied externally, or taken internally, it gives rise to the constitutional effects of mercurials, which I have already described. Jacobs mentions a case in which death resulted from applying it to a wart on the face; and Fabricius Hildanus, Bartholinus, and Longius, have also reported cases in which the external use of this agent gave rise to the constitutional effects of mercury. Frederic Hoffmann, Plouequet, Girtanner, and more recently Mr. Brett*, have related instances of poisoning by its internal administration. In *small doses* (as from an eighth to a quarter of a grain, in the form of pills,) it may be taken to excite salivation, though the practice is objectionable where an irritable condition of bowels exists.

The *nitric oxide of mercury* may be considered as having a more powerful local action than the *hydrargyri oxydum rubrum* of the Pharmacopœia, on account of its containing a small portion of the pernitrate of mercury.

Uses.—It is principally employed as an *external* agent. Thus it is used as a caustic to destroy spongy excrescences, venereal warts, &c.; as a stimulant to foul indolent ulcers, whether syphilitic or otherwise, and to the eyelids in chronic inflammation of these parts. Internally, it has been principally employed in syphilis. It is employed either in the form of a finely-divided powder, or as ointment.

Unguentum hydrargyri nitrico-oxydi, or *red precipitate ointment.*—According to the London Pharmacopœia, this is prepared by adding an ounce of finely-powdered nitric oxide of mercury to a mixture of two ounces of white wax, and six ounces of prepared lard. By keeping, it undergoes change of colour, from red to grey, most likely from its partial deoxidation. Dr. Duncan says, that if it be mixed with any ointment containing resin, it quickly becomes black. This also, I presume, arises from the same cause as the last. It is a very common application to indolent sores and ulcers, in which we want to increase the discharge and improve its quality. It is employed also as an application in inflammation of the eye-lids.

Lotio (seu *aqua*) *phagedenica*—*Yellow wash.*—This is prepared by adding corrosive sublimate (from 15 to 30 grains) to a pint of lime water. Double decomposition takes place, chloride of calcium is formed in solution, and peroxide of mercury precipitates. If the quantity of corrosive sublimate be large in proportion to the lime-water, some oxichloruret of mercury will also precipitate. This wash has been long in use as an application to foul venereal ulcers.

Unguentum Hydrargyri Nitratis.

Preparation.—This ointment (frequently termed *citrine ointment*) is prepared by dissolving mercury in nitric acid, and adding the solution thus obtained to a mixture of lard and olive oil. The proportions of the ingredients directed in the London Pharmacopœia are not these which yield the the best preparation. In the following table, I have placed, side by side, the quantities directed in the London Pharmacopœia, those recommended by Guibourt, and those employed by Dr. Duncan, of Edinburgh:

	Pharmacopœia.	*Guibourt.*	*Duncan.*
Mercury	1 oz.	1 oz.	1 oz.
Nitric acid	1 oz. 3 drs.	2 oz.	3 oz. (Nitrous acid).
Lard	6 oz.	8 oz.	3 oz. 6 drs.
Oil	4 oz.	8 oz.	9 oz. 1 dr.

Theory.—When the mercury and nitric acid are mixed, the former abstracts oxygen from the latter, and forms two oxides (the proto- and peroxide of mercury), while binoxide of nitrogen is generated, part of which escapes in a gaseous state, while part reacting on some of the free nitric acid, produces nitrous acid, which gives the liquid a greenish tinge. The solution thus obtained contains free *nitric* and *nitrous acids*, and the *nitrate* and *hyponitrite of mercury.*

When this solution is added to the lard and olive oil, the free nitrous acid (or perhaps the hyponitrous acid which it contains) converts the olive oil into a solid fatty body called *elaïdine* (from ελαΐς—ελαΐδος, an olive-tree); the stearine and

* MEDICAL GAZETTE, vol. xiii.

elain of the lard also acquire a greater consistence from undergoing an analogous change. Boudet is of opinion that these changes are effected by the physical influence merely of the nitrous acid, since the decomposition of this acid is not essential to the formation of the elaïdine. The hyponitrous acid contained in the hyponitrite of mercury is capable of producing the same effect. The fatty bodies exercise a deoxidizing influence on the acids (free or combined) of the solution, and which is supposed to be independent of the formation of elaidine; and, in consequence of this, nitrogen or nitrous gas is given out. They also deoxidize the oxides of mercury, reducing the peroxide to the state of protoxide, and, by keeping, even converting the protoxide into metallic mercury; which, being in a finely-divided state, gives to the mass a greyish colour. This latter change is proved by two facts—first, the change of colour which the ointment undergoes; and secondly, if we digest æther on old citrine ointment, the fatty matters are dissolved, leaving behind metallic mercury. It is to prevent this change, that more acid ought to be employed than is directed in the Pharmacopœia.

Elaïdine is a fatty substance, distinguished from stearine in having a higher fusing point, and also in yielding a peculiar acid (termed *elaïdic*), and glycerine, when treated with caustic alkalies; whereas stearine, by saponification, yields glycerine and stearic acid. Elaïdic is distinguished from stearic acid by its less fusibility, and its greater solubility in alcohol.

Properties.—When properly prepared, this ointment has a fine yellow colour, and a soft consistence. By keeping, it is very apt to become hard; in some cases it becomes so much so, that we may readily reduce it to powder. Increasing the quantity of oil originally employed in its manufacture, checks this tendency. This ointment is very apt to become grey when mixed with other ointments, in consequence of their deoxidizing powers.

Physiological effects. — It is an irritant, and even a slight caustic. When it has undergone decomposition, by keeping, it irritates ulcers exceedingly, and even excites slight erysipelatous inflammation.

Uses.—We employ it as a stimulant and alterative in *chronic diseases of the skin*,—more particularly those affecting the hairy scalp, as the different forms of porrigo, in which it is exceedingly efficacious. It is also used as a *dressing to ulcers*—to stimulate and cleanse them—as in foul syphilitic sores and phagedænic ulcers. Lastly, it is employed in *ophthalmic diseases*,—more particularly ophthalmia tarsi, or psorophthalmia,—in which it is applied (mixed with its own weight of almond oil) by means of a camel's-hair pencil to the lids — frequently with such advantage that some have denominated it a specific in this complaint.

PATHOLOGICAL

OBSERVATIONS ON THE BLOOD:

BEING

THE CROONIAN LECTURES

Delivered at the Royal College of Physicians, May 1836,

BY GEORGE BURROWS, M.D.

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LECTURE I.

IN the former course of lectures, I commenced an explanation of the changes which take place in the blood when its circulation is arrested in the living body. This subject was divided into two parts—

1. *Description of the changes which take place in the blood when its circulation is stopped within the heart, and the proper vessels of the circulation.*

2. *Description of the changes which take place in the blood when extravasated.*

Of the first division I treated very fully, and there remains to be discussed but two of its subdivisions—viz. the changes of the blood when stagnant in the capillaries, and when stagnant in venous cells, as in the spleen.

Of the second division I only described the changes taking place in blood effused from divided vessels, or when poured out upon membranous surfaces. There remains for me to describe, of this second part—

1. *The changes which take place in blood extravasated during inflammation.*

2. *The changes taking place in blood effused into the substance of organs, in consequence of obstructions to the circulation through them.*

And, lastly, the changes occurring in blood extravasated from violence, and from altered conditions of that fluid itself.

The changes which take place in the blood when it becomes stagnant in the capillary vessels of a part, are so intimately connected with the changes which take place in the blood effused from those vessels into the tissues (and particularly when suffering from inflammation), that it will be much more convenient and intelligible to undertake the description of these two subdivisions of the subject conjointly, and

this will form the substance of the first lecture.

I shall next consider the various conditions of the blood when stagnant in the interior of organs, as in the venous cells of the spleen, or when effused into the substance of other organs, as the brain, lungs, liver, &c.

I shall conclude the subject by describing the changes taking place in blood extravasated by violence, and from altered conditions of the fluid itself; together with some general observations upon the nature of these varied changes taking place in stagnant blood in different parts of the living body.

Since the composition of my former courses of lectures on the pathology of the blood, great additions have been made to our knowledge on this interesting subject. The occasional organization of masses of fibrin within the vessels of the circulation has been admitted by more able pathologists than myself; the transformation of the blood into pus and other substances, hitherto considered the products of peculiar morbid actions of vessels, has likewise been maintained and amply illustrated; lastly, the chemical composition of the blood, in many diseases, has been investigated; the presence of principles foreign to the blood in health, has been detected; and the absence, or great diminution of its healthy constituents, has likewise been ascertained.

New facts have also presented themselves to myself during the past year, confirmatory of opinions advanced in the last course of lectures; and to a few of these I must direct attention, before I proceed to the immediate subject of the lecture.

In that storehouse of valuable pathological observations, the "*Précis d'Anatomie Pathologique*" of Professor Andral, there is a note upon the vitality and occasional organization of the blood, which I cannot refrain from quoting in his own words, because it strictly bears upon doctrines maintained in these lectures.

"The meaning of this word, organization," writes Andral, "is far from being settled, and we must not believe that the manifestation of life only occurs where there is an organization such as we find it in the higher orders of animals, such as we are therefore in the habit of representing it in our own minds, and such as we conceive it to be in all cases. If we trace the series of living beings, we observe the organs or instruments of vital acts diminish more and more, both in number and complexity; we see that they even entirely disappear, and still there will be life. Life is not the less certain in the vegetable seed, or in the drop of liquid, the primary rudiment of the embryo; yet in these corpuscles we can trace still less than in the blood the rudiments of what we commonly call organization.

"In the absence, then, of forms to which common opinion affixes the idea of life, vital acts may be accomplished. We should be far from imposing certain conditions in the arrangements of matter as necessary to the manifestation of life.

"Observation compels us to admit, that in a thousand instances life is made manifest to us, not by forms (or organization), but by acts."

These remarks of Andral upon organization must be kept constantly in mind when we are examining the transitions of a mass of coagulated fibrin from a concrete homogeneous mass into some new product, which eliminates within itself both vessels and morbid secretions.

It is perfectly true, that if the blood be regarded as a mass moving through the larger vessels, and be compared with any organized tissue, or with the parenchyma of any organ, there is no doubt a great difference between the physical qualities of the living fluid and solid. This dissimilarity, however, no longer exists, when a comparison is made between the blood in the capillaries of an organ, and the surrounding structure which it nourishes and forms; in this part of each organ the blood and the tissue are intimately blended together. In every structure there is a point where the blood must be regarded as becoming extravasated—where it mingles and combines with, and renovates the surrounding tissue—where, in fact, it becomes organized, and where its vitality is no longer a matter of doubt.

Andral, Carswell, and other modern pathologists, have pointed out that it is not only under the foregoing ordinary circumstances that a power of organization is recognized in the blood: a frequent source of its organization is often observed whenever the fibrinous part of the blood becomes coagulated, both within the vessels of the circulation, and also when extravasated. The proofs of organization within these masses of fibrin are sometimes obscure; at other times they are more manifest. A circulation is established through them; numerous and dissimilar secretions are eliminated within them; vessels are traced in their substance; the natural tissues and morbid structures are developed within them, or, perhaps, they are wholly converted into such substances.

These changes and proofs of organization in the coagulated fibrin have been strongly insisted upon in an interesting and useful work recently published by Dr. Southwood Smith, entitled "Philosophy of Health."

"The vitality of the blood is proved by

the process of organization," writes this author. "We can trace only a few steps of this process, but these are sufficient to establish the point in question. Blood effused from living vessels into the substance, or upon the surface of living organs, solidifies, without losing vitality. If a clot of blood be examined some time after it has thus become solid, it is found to abound with blood-vessels. Some of these vessels are obviously derived from the surrounding living parts. The minute vessels of these parts, as can be distinctly traced, elongate, and shoot into the clot. The clot thus acquires blood-vessels of its own. By degrees a complete circulation is established within it. The blood-vessels of the clot act upon the blood they receive just as the vessels of any other part act upon their blood,—that is, transform it into the animal matter it is their office to elaborate.

"In this manner a clot of blood is converted into a component part of the body, and acquires the power of exercising its own peculiar and appropriate functions in the economy.

"But while, in this process, some of the vessels of the clot can be distinctly traced from the surrounding living parts, others appear to have no connexion with those parts; at all events, no such communication can be traced. These vessels, the origin of which cannot be found external to the clot, are supposed by some physiologists to be formed within it. Within the living egg, during incubation, certain motions or actions are observed spontaneously to arise, which terminate in the development of the chick. Analogous motions arising within the clot, terminate, it is conceived, in the development of blood-vessels. According to this view, a simultaneous action takes place in the clot and the living part with which it is in contact; each shooting out vessels, which elongate, approximate, unite, and thus establish a direct vital communication. Whether this view of the process of organization be the correct one or not, does not affect the present argument. It is certain that a clot of blood, surrounded by living parts, becomes organized; it is certain that no dead substance, surrounded by living parts, becomes organized; it follows that the blood possesses life *."

The same author has maintained this doctrine of the organization of the fibrin of the blood in another † publication, with strong arguments, supported by the well-known observations of John Hunter.

In Dr. Carswell's work on the *Elementary Forms of Disease*, in his fasciculus on *Mortification*, that kind of mortification which has been called gangræna senilis is very correctly described as depending upon ossification of the coats, or actual obliteration of the arteries of the part. Several cases of this kind which I have had the opportunity of examining after death, evidently depended upon these conditions of the arteries, and not upon any inflammation of the lining membrane of the vessels. Upon this point of pathology, Dr. Carswell writes thus strongly:—

"Leaving aside the incontrovertible evidence of the material facts which demonstrate the truth of the position (that this form of mortification is the immediate consequence of a deficient supply of arterial blood from a mere mechanical obstacle to the circulation of this fluid), there are other circumstances which shew that inflammation of the arteries cannot be the cause of gangræna senilis. In the first place, the obstructing causes, viz. fibrous, fibro-cartilaginous, and osseous tissue, could not owe their origin to inflammation in a space of time so short as that which often marks the duration of this disease; and in the second place, the presence of these accidental tissues in the arteries is no proof that inflammation had ever existed in these vessels.

"Stagnation of the blood from mechanical or physical causes, is sufficient to give rise to the formation of these tissues by means of the fibrin of this fluid."

Dr. Carswell thus admits that the fibrin of the coagulated blood within the vessels may become organized, and may be converted into fibrous, fibro-cartilaginous, and osseous tissue, without the previous intervention of inflammation of the lining membrane of the arteries.

Some of our own most distinguished anatomists of the present day deny the organization of these masses of fibrin. It appears to me that this denial arises partly from the remains of the exclusive dominion which morbid anatomy so long held over men's minds in the contemplation of disease, and partly because the constant occupation of these eminent men in the dissecting-room has led them to regard a structure as organized only when the vessels of its circulation can be detected by the minute scrutiny of their scalpel, or made manifest to the eye by a successful application of the injecting syringe. The physiologist or pathologist is, however, induced, by evidence no less conclusive, to admit the organization of a natural tissue or morbid structure, when the anatomist has failed to demonstrate the vessels of its circulation.

How large a number of beings would be excluded from the class of organized creatures if such a proof of circulation

* Philosophy of Health, vol. i. p. 352.
† Penny Cyclopædia; art. *Blood.*

through them were required before they were acknowledged to be organized.

To put this part of my argument in a clearer and more forcible manner, I will borrow some observations on the nature and variety of circulation from a distinguished member of this College, and author of the Bridgwater Treatise *on Animal and Vegetable Physiology*. Dr. Roget expresses himself in the following language (vol. ii. p. 231):—

"A comprehensive survey of the different classes of animals, with reference to this function of circulation, enables us to discern the existence of a regular gradation of organs, increasing in complexity as we ascend from the lower to the higher orders; and showing that here, as in other departments of the economy of nature, no change is made abruptly, but always by slow and successive steps. In the very lowest tribes of zoophytes, the modes by which nutrition is accomplished can scarcely be perceived to differ from those adopted in the vegetable kingdom, where the nutritive fluids, instead of being confined in vessels, appear to permeate the cellular tissue, and thus immediately supply the solids with the materials they require; for in the simpler kinds of polypi, of infusoria, of medusa, and of entozoa, the nourishment which has been prepared by the digestive cavities is apparently imbibed by the solids, after having transuded through the sides of these organs, and without being previously collected into other and more general cavities. This mode of nutrition, suited only to the torpid and half vegetative nature of zoophytes, has been denominated nourishment by imbibition, in contradistinction to that by circulation; a term which implies not merely a system of canals such as those existing in the medusæ, where there is no evidence of the fluids really circulating, but an arrangement of ramified vessels composed of membranous coats, through which the nutrient fluid moves in continued circuit.

"In some of the minuter species of crustacea, the fluids have been seen, by the aid of the microscope, moving within the cavities of the body, as if by a spontaneous impulse, without the aid of a propelling organ, and apparently without being confined in membranous channels or tubes of any sort. This kind of diffused circulation is also seen in the embryos of various animals, at the earliest periods of their development, and before any vessels are formed."—(Page 235.)

This is the kind of circulation we must expect to find traces of in the early development of organization in coagulated masses of fibrin within the living body. If the embryo passes rapidly through successive gradations of ascending complexity of organization, from the mere vesicle to its more perfect and complete organization, so does the living blood not unfrequently afford examples of analogous transformations in the living body.

Many distinguished anatomists, however, have denied this occasional organization of masses of fibrin within the living body; and very recently, Dr. Benjamin Babington, in adverting to my Pathological Observations on the Blood, delivered in the Croonian Lectures of 1835, has thus expressed himself, in the new Cyclopædia of Anatomy (art. *Blood*):—

"I can imagine nothing more unlikely than that an insulated mass of fibrin, owing its origin to the mere coagulation of the blood from rest, and therefore only by gravitation brought in contact with the sides of the vessel which may contain it, should assume an organized structure.

"I have looked carefully for unequivocal signs of vitality in these false polypi, and I confess that I have never been able to satisfy myself of its existence."

On the other hand, it appears to myself, that as the blood is deposited in detail by the nutrient arteries of tissues, and there becomes an integral part of the structure, lives and assists in accomplishing vital functions, so is it far from unlikely that such blood, when deposited in masses, should become organized and exhibit changes which are the undoubted effects of vital actions. Opportunities certainly do not very often occur for observing such phenomena, but I have had several, and the following facts are worthy of recital:—

Mr. Bayntin, the curator of the museum at St. Bartholomew's Hospital, was present, not long since, at the slaughtering of a horse, for the purpose of obtaining some parts for anatomical demonstration. He removed from the pubic and inguinal regions some hard masses, which at that time appeared to him to be enlarged absorbent glands; but upon subsequent careful examination, with Mr. Stanley and myself, it was discovered that these masses were coagula of blood in the veins. The lining of the veins in contact with these coagula was perfectly smooth, pale, shining, and apparently healthy.

Two of these coagula were about the size and shape of filberts; the others were smaller. One of the larger, upon being divided, exhibited a number of concentric layers of firm fibrin, with the colouring matter of the blood in it, very similar to the coagulum of an aneurismal sac. This mass of fibrin was contained in a firm elastic capsule, which could be peeled off with facility. The division of another of these masses exhibited the same internal appearance as the former, and it was contained in a similar dense elastic capsule. Upon

stripping off this outer capsule, there appeared a second membrane investing the contained coagulum; and small plates of osseous matter were distinctly perceptible in this second investing membrane.

A third coagulum, of nearly the same size and external appearance, was likewise found. This had strong attachments at two points to the lining of the vein, by means of fibrous cords. This third coagulum was connected by a long, firm, cylindrical, fibrous band, to a fourth coagulum, of the same nature as the others, but rather smaller. A perfectly healthy valve covered the proximal or cardiac end of this last-mentioned coagulum. The preparation of these parts is preserved in the museum of St. Bartholomew's Hospital.

I have recently learnt that such coagula are not uncommon in the veins of horses, and that they are also found in the pulmonary veins of some amphibious animals. When we consider the great obstruction to circulation through the lungs during the periods of submersion of such amphibia, it is not surprising that coagula should be found at any part of the pulmonary circulation. The varied condition of these masses of coagulated blood in the veins of this horse, appear to me to offer some striking elucidations of the changes which coagulated blood is capable of undergoing within the vessels, and likewise strong corroboration of the opinions I have advanced in this College, in the Croonian Lectures of 1835.

In the first place, the blood appears to have coagulated in successive layers, and to have retained its colouring matter, as it does in the coagula of aneurismal sacs. Each of these coagula was surrounded by a distinct membranous capsule; others possessed a second investing capsule, in which was deposited distinct plates of ossific matter: these, to my mind, are indisputable proofs of the effects of organization accomplished within and around these coagula. Other coagula were attached to the lining membrane of the vein by fibrous cords, and these latter would afford a ready means by which their organization would be accomplished. The fibrous band connecting two of these coagula together, appeared to be nothing but a continuation of the same coagulum through the vein, but which had shrunk, and had thus been gradually changed into a cylindrical cord.

Although two of these coagula apparently had no connexion with the lining of the vein, it is probable that some slight fibrous connexions were accidentally ruptured on removing them. I am, then, of opinion that these fibrous bands, connecting the coagula with each other, and with the lining of the vein, were primarily nothing more than portions of coagula loose in the vein, and which, upon coming in contact with its lining, had excited increased vascularity there, and from that source had gradually been accomplished the organization of the clots. This process of organization has been ably illustrated by Mr. Hunter, and explained upon the principle which he terms contiguous sympathy; that is, when two living parts are brought into contact in the living body, union between the two is the result. I regret that I have not other preparations to illustrate these opinions, but all who are conversant with minute morbid anatomy are aware that it often happens, after thoroughly examining morbid structures, that the parts are no longer in a condition to be demonstrated to others, or to be preserved in the form of a preparation.

I shall now proceed briefly to consider *what are the changes which take place in the blood when its circulation is arrested in the capillaries, or when extravasated from them, and more particularly during that series of morbid phenomena, the sum of which is usually termed inflammation.*

If we refer to the extensive series of experiments performed by Dr. Wilson Philip, and Dr. Charles Hastings, to illustrate the changes taking place in the blood-vessels during inflammation, (and these experiments have been recently repeated, and their results confirmed by M. Gendrin and Dr. Carswell) it appears that there is a stage in inflammation when the circulation of the blood is slackened and almost stagnant in the dilated capillaries.

From this stagnation, according to Gendrin and Hastings, there results a modification of the globules of the blood; they gradually change their colour, and from the divided capillaries of the inflamed part there exudes a purulent fluid. Gendrin affirms that when inflammation has been induced in the web of a frog's foot by the application of various stimulants, that it is easy to watch the progress of suppuration at the edge of a wound made in the web. If a highly polished lancet be passed beneath an excessively thin layer of membrane at the edge of the wound, it offers a convenient method of examining the state of this layer: the blood is observed to slacken its course within the dilated capillaries of the inflamed part, and as it approaches towards the centre of the inflammation, the globules of blood lose their colour, and are changed into globules of pus. The blood thus altered, then exudes very slowly from the edge of the wound, in the form of pus.

In Dr. Hastings's experiments the retarded circulation in the capillary vessels of an inflamed part was always accompa-

nied with an alteration in the appearance of the blood. In the natural state of this fluid, globules could be distinctly seen, but after the inflammation had commenced, the globular arrangement disappeared, the blood became redder in the part, and the most minute capillaries were distended with it. Dr. Hastings then proceeds to describe the remainder of the phenomena in the following words, (P. 92, *On Inflammation*):—" If, however, the inflammation proceed, the blood becomes nearly stagnant; it continues very red, and the vessels are much dilated. The blood then ceases to move in the dilated vessels, it loses its red colour, and becomes of a yellowish brown hue. When this high degree of inflammation is not relieved, sphacelus ensues. The part then feels softer to the finger, and gives way with less force. The separation of the dead from the living part takes place soon after this change in the colour of the blood."

Dr. Hastings has in this passage described the transformation of blood in the capillaries into pus, although it was not written with such intention.

Dr. Carswell also states, (*Elementary Forms of Disease* — Fasciculus *Pus*,) " that from the very obvious character of the facts elicited by microscopical observations upon the capillary vessels of the transparent parts of animals in a state of inflammation, no doubt can be left in the mind that the formation of pus is a consequence of a modification of the blood, manifested more especially by a change taking place in the colour, transparency, and bulk of the globules of this fluid, after its circulation has been arrested in the capillary vessels during inflammation; that this change in the globules takes place in the capillary vessels, and that these vessels conduct the globules in this state to the exterior, where they appear combined with the serum of the blood, under a peculiar liquid form, or that which we call pus. Such is one mode in which pus is formed, and which has been compared to the process of secretion."

Admitting the accuracy of the observations of Hastings, Gendrin, Dr. Carswell, and others, it would appear that pus is formed from the blood, or the latter fluid is convertible into the former, without the previous organization " of a new or peculiar structure of vessels, or a new disposition and mode of action of the old," which Mr. Hunter thought to be necessary, and which led him to consider pus as a glandular secretion. A similar change in the blood takes place, when it is poured forth into the cellular tissue, as it often is in violent inflammations.

M. Gendrin, in that excellent and most elaborate work, the " Histoire des Inflammations," has clearly pointed out that in every case of violent inflammation of the cellular tissue, the increase of bulk and induration of the part are in consequence of the presence of effused coagulable lymph and extravasated blood. A careful section of the inflamed part will show this distinctly, and likewise the capillary vessels distended with blood.

When the suppurative or pyopoietic process commences, the gradual loss of colour of the globules, the softening and conversion of the blood into pus, are observed to follow each other in regular succession, both within the capillaries and in the extravasated blood.

Adopting M. Gendrin's elaborate description of the anatomy of the different tissues, when inflamed, we find that inflammation from its very commencement produces a state of infiltration of the tissues: the fluid which is poured forth into the structure of the part appears to be partly vapour, and partly liquid; at least some part of the effused fluid rises in vapour on exposure to the air: at an early stage of the inflammation there is no perceptible coagulum of the fluid. The infiltration differs but little from that of health, excepting in quantity.

But as soon as the inflammation has reached a certain stage of its development, it is very easy to recognise a copious deposition of a substance of the consistence of jelly, interspersed between the fibres of the tissue of the part: at the boundaries of the inflammation, the effused fluid remains liquid and uncoagulated. The fluid poured out into the substance of an inflamed tissue is then no longer in its physiological condition, because it possesses the property of self-coagulation. If the inflammation become very intense, the fluid which is infiltrated, and which coagulates spontaneously, is either reddish or bloody, or it may even be pure blood. This infiltration will appear in all its stages if a transverse section be made into an inflamed part.

Towards the centre of the inflammation the infiltration is composed of pure blood, which sometimes will be found collected in drops. This deposition of blood coagulates during life, and the gelatinous and liquid serosity is distributed in streaks in these clots, or forms around them. The gelatinous infiltration predominates around this central point, and is composed of a reddish substance, partly gelatinous and partly serous, through which blood is dispersed in small streaks. At a greater distance from this centre, the infiltration is more serous and of a yellowish colour, while at the extreme limits of the inflammation, the fluid is entirely serous and colourless: there seems to be a direct relation between the nature of the infiltration

and the degree of vascularity and inflammatory alterations of the tissue of the inflamed part*.

Gendrin likewise describes the appearance of the different tissues, when suppuration begins, in the following terms, (P. 467):—

"If we carefully inspect a part which has been inflamed for some time, and which has passed into a state of suppuration, we still discover a gelatinous fluid spontaneously coagulated towards the limits of the inflammation, and even at some points of the inflamed part, in the midst of other alterations. This gelatinous fluid here and there appears turbid and of a greyish yellow: these points are more numerous, and of greater extent, in proportion as our attention is directed towards the unmixed purulent infiltration.

"This infiltration, interspersed between the fibres and in the interstices of the inflamed tissue, is easily recognised, not only by the presence of a fluid more or less thick and gelatinous, but also of a liquid of a yellowish white colour, which appears slightly incorporated with, or adherent to, the diseased tissue; it also exudes by pressure, and its colour may be contrasted with that of the inflamed part. If we examine with the microscope the fluids thus infiltrated, we recognise the pus by its characteristic globules. At the boundaries of the purulent infiltration, and in those points where the infiltrated fluid begins to be purulent, we detect the true globules of pus mixed with smaller globules, which still preserve, in a slight degree, the pale rosy colour of the globules of the blood, partially deprived of their colouring matter by rest, after their escape from the vessels.

"It is, then, evident, that infiltrated pus is only a modification of the spontaneously coagulable fluid, the infiltration of which has preceded the appearance of the pus, and which we can recognise in its transition into a state of pus.

"When bloody pus is examined," continues Gendrin (vol. ii. p. 489), "we easily recognise the progressive change taking place in the molecules, or the transformation of the blood into pus: the globules of red blood are smaller than those of pus; they also gradually lose their colouring matter, which appears in streaks between them: but among these there are a great number deprived of colour, or of a greyish red tint. These are either transparent, and in that case of the same size as the others, and these are globules of the coagulable fluid; or they are slightly opaque and of a greyish yellow, which are the characteristics of a semi-purulent globule: lastly, if the globule be much larger than those of the blood or the self-coagulable fluid, and after a few seconds' exposure on the object-glass of the microscope corrugates or shrivels, then it is a perfectly formed purulent globule."

Such is the account which Gendrin offers of the phenomena he has observed to take place in intense inflammation, and of the gradual transformation of effused coagulable lymph as well as extravasated blood into pus. It is very desirable that some one familiar with microscopical observations should repeat these experiments of M. Gendrin, by which he traced the gradual transformation of the globules of the blood into pus, both within and without the capillaries, during inflammation.

Dr. Carswell also informs us (Fasciculus *on Pus*), "that he has on several occasions satisfied himself, that this mode of the formation of pus often occurs to a considerable extent in blood effused into the cellular tissue from external violence, when followed by acute inflammation; and that he has frequently observed it in the blood which has ceased to circulate in inflamed veins."

In the Gulstonian lectures of 1834, I advanced the opinion, that the blood coagulated in the veins was occasionally converted into pus, and in the Croonian lectures, of 1835, I attempted to illustrate and confirm this doctrine by the narration of cases, and by farther arguments.

Since the latter period, Dr. Carswell has published his Fasciculus *on Pus*, in which he has very clearly described the changes taking place in blood coagulated within inflamed veins. He writes thus:—"The blood can be traced sometimes in the same, sometimes in different veins, to have undergone a gradual change into pus. In the veins which are but slightly inflamed, it is found in a state of fluidity; in those in which the inflammation is marked by great vascularity, with serous and albuminous effusion between the coats, it is coagulated, slightly adherent to the internal membrane, or united to it by a thin layer of unorganized coagulable lymph. As we approach those portions of the veins in which it has proceeded to the suppurative stage, the arterial colour of the blood passes into a pale yellow, or that of fibrin, of which it has also at first the consistence, but becoming soft, pulpy, and creamy, until it is at last lost in the puriform matter contained in the vessels, or in the surrounding tissues."

Thus, then, the transformation of blood into pus has been observed both in the capillaries and when extravasated from

* Hist. des Inflam. vol. ii. p. 464.

them in inflammation: these changes must be accomplished according to the same laws in both cases.

Indeed, all writers, since the time of John Hunter, concur in regarding pus as a fluid eliminated from the blood. But they may be divided into three classes, according as they regard the process a vital, a chemical, or a mechanical one.

Hunter, and his immediate pupils, regarded pus as a secretion from the blood. He says, "we must look upon pus as a new combination of the blood itself, and must be convinced, that in order to carry on the decompositions and combinations necessary for producing this effect, either a new or peculiar structure of vessels must be formed, or a new disposition (and of course a new mode of action) of the old must take place. This new structure or disposition of vessels I shall call glandular, and the effect, or pus, a secretion."

Gendrin, and some others, after describing the gradual transformation of the blood in the capillaries, as well as extravasated in inflamed parts into pus, conclude their descriptions by expressing an opinion, that this change in the globules is the result of chemical actions. Thus Gendrin states, that "it is difficult to perceive any special action of the capillaries on the molecules of the blood in this phenomenon of the formation of pus; it appears probable that this transformation of the blood into pus is rather some kind of chemical alteration, the rapid effect of the stagnation of the coagulable principles of the blood in the inflamed tissues." (Vol. ii. p. 471.)

Admitting that both blood extravasated in inflammations, and that contained in the capillaries, is converted into pus, Dr. Carswell is of opinion, that the same cause must always produce this transformation, and that, therefore, the capillaries have no share in the purulent transformation of the blood. Its formation certainly cannot be restricted to a morbid process in these vessels. Dr. Carswell considers this morbid process essentially dependent on inflammation as its efficient cause.

Mr. J. Earle has recently offered an explanation of the formation of pus, which reduces the process to a simple filtering of the blood through the condensed surrounding structure; and this explanation is applied not only to a suppurating sore, but also to the formation of an abscess.

In a very comprehensive review of our present knowledge on the nature of inflammation, published in a series of papers in the MEDICAL GAZETTE, 1835, Mr. J. Earle has given this other and very different explanation of the manner in which pus is produced or separated from the blood. After very successfully combating the opinion of Mr. Hunter, that pus was a secretion resulting from a new structure or disposition of vessels in the inflamed part, and which that great philosopher termed glandular, Mr. J. Earle offers an account of the formation of pus, both probable and possible, but which appears to me too mechanical, and which does not explain the manner in which effused blood is occasionally converted into pus.

But here, as upon all occasions when practicable, it is better to give an author's opinions in his own language. Mr. J. Earle's theory of the process of suppuration is the following:—

"Let us suppose a small portion of skin to have been removed from the surface of the arm, for instance, by means of the knife, and that the flow of blood immediately consequent thereupon has ceased; as soon as this has happened an obstruction exists in the vessels at all their extremities, otherwise the blood would still continue to flow from the wound. Of course the consequences of an obstruction to the flow of the blood must be the same under these as under any other circumstances. Where obstruction exists, the blood will stagnate, while in the immediately communicating vessels there will be accumulation; they will become distended, and then an increased flow will be caused in the collateral and circumferential channels. Thus will all the essential characteristics of inflammation be established, in proportion as the flow of blood from the surface of the wound ceases, as the necessary consequence thereof.

"Under these circumstances, a thin layer only of parenchyma, which is readily permeable by a fluid, exists between the external air and the blood in the subjacent vessels. Now, although this layer of parenchyma is sufficiently dense to prevent the egress of the blood as blood, it is evident, that being permeable, it cannot prevent its exuding in detail; and if we reflect a little upon the nature of the different component parts of the blood, the order in which this exudation must take place will be at once apparent.

"The first occurrence which takes place upon a fresh cut surface, when the flow of blood has ceased, is the exudation of the serum of the blood, bringing with it the salts and albumen; after a time, more or less according to the degree of vigour with which the circulation is being performed, some of the fibrin begins to be added to the serum, a considerable part of which, owing to its property of coagulating spontaneously when no longer circulating as part of the blood, becomes solid, and adheres to the surface upon which it has

exuded. The surface, now covered with an amorphous deposition of coagulated fibrin, has become thicker, so that a greater impediment exists to the extrusion of the globules than before. In course of time, however, more or less, as was the case with the fibrin, according to the force of the blood's motion, the globules, deprived of their colouring matter, begin to be added to the serum and fibrin; as the number of these globules is augmented, the fluid becomes thicker, and assumes the appearance which is known by the name of pus. Thus it happens that at length the whole of the different parts of the blood, except the colouring matter, is exuded by the *vis a-tergo*, and the wound becomes what is commonly termed a suppurating sore. It appears, from what has just been stated, that there are two reasons why the globules are the last to be effused upon the surface of a wound; the first is to be found in their size, the second in the deposition of lymph, by which the thickness of the stratum through which they have to pass is increased. It would appear, also, that these two circumstances offer an easy explanation of the loss of colour, by which alone the globules of pus are to be distinguished from those in the blood; for as the colouring matter, which is by no means adherent to these bodies, is observed to be gradually lost as they successively approach the surface of a sore, it is certainly possible that it may be merely mechanically wiped off in their progress. This opinion derives very material support from the circumstance of the red colour of the globules appearing to be more or less retained, according to the thickness and density of the stratum through which they have to pass."

Although, in these papers on Inflammation, Mr. J. Earle pays a very high and well-merited compliment to M. Gendrin, the author of the "Histoire Anatomique des Inflammations," and, indeed, adopts that author as his polar star and guide in his account of the phenomena of the process, and likewise admits the value of Dr. Hastings' experiments, and their parallelism with those of Gendrin, still the opinion entertained by M. Gendrin, that the transformation of the globules of the blood into pus is probably the result of chemical action, is considered by Mr. J. Earle to be entirely erroneous.

"It is quite certain," writes Mr. Earle, "that no chemical action takes place up to a certain stage of the process of suppuration; and no proof has ever yet been adduced of the existence of such an agency at its completion. It follows, therefore, that the opinion of the formation of pus being attributable to chemical action, if not entirely erroneous, is at any rate gratuitous."

Notwithstanding this condemnation of the opinion entertained by M. Gendrin, we find Dr. Hastings, nearly twenty years ago, expressing himself upon this very point in the following manner:—

"The changes that take place in the appearances of the blood of an inflamed part, are very important, but have not been particularly described by those who have treated of this state of the blood-vessels in inflammation. Different explanations may be given of these alterations in the blood *.

"The increased redness of its colour may arise from the accumulation of globules in capillaries, which, from debility, allow a much more ready entrance to them than in the healthy state; or the vital power of the vessels may be so much diminished, as no longer to resist the tendency of the constituent parts of the blood to enter into new combinations. Hence chemical changes ensue. The rapid manner in which the change in the blood happens, and its return to the natural state as soon as the vessels contract, would seem to favour the former explanation. But it appears very probable, from the following experiments, that a chemical change does take place in the blood of an inflamed part.

Experiment.—A saturated solution of muriate of soda was applied to the web of a frog's foot. In ten minutes, the arteries, veins, and capillaries, were much dilated; the blood moved very slowly, had lost its globular appearance, and was redder than before the application of the salt. The web to the naked eye appeared inflamed. In this state of the vessels, spirit of wine was applied to them. In five minutes after its application, the blood in the venous trunks moved quicker, and they contracted; the blood also contained in them was less red, and globules could again be perceived in it. In ten minutes, many of the smaller vessels likewise contracted, and the blood contained in them became less red, and moved more briskly. At this time a venous trunk was observed, in which the blood appeared healthy, and its motion as quick as previously to the application of the salt. Most of the capillaries, also, which terminated in this vein, seemed in a natural state. Some of the capillaries, however, which assisted in forming it were still dilated, and the blood in them was much more red than that in the vein; no globules could be seen in it, and it moved very slowly. The blood was seen to pass

* Hastings on Inflammation, p. 94, &c.

from these debilitated branches into the large venous trunk, and its appearance was very different from that which was brought by those capillaries whose action had become healthy. It was deeper coloured, and irregular flocculi appeared in it, which might be compared to small ragged portions separated from the coagulum of arterial blood. When these irregular flocculi had floated for some distance in the blood contained in the venous trunk, they disappeared, being either dissolved in the serum, or converted into globules. Nearly similar results occurred in two other instances.

"In these experiments it is quite evident that some change had taken place in the blood of the debilitated vessels, because it could be distinguished from that which was conveyed by healthy capillaries to the large vein. It seemed to be quite broken down, and to have completely lost its globular structure. This alteration in the structure of the blood seemed to depend on the debilitated action of the vessels in which it was before contained; for it soon assumed its natural appearance when brought into the large venous trunk, whose action was unimpaired. We may also conclude, that the blood of an inflamed part undergoes chemical changes, from a consideration of what is observed in it when approaching to gangrene. It then entirely loses its red colour, and becomes of a yellowish brown hue, which necessarily implies an alteration in its chemical constitution. From a consideration of these striking facts, it seems not improbable *that the change, which is early observed to take place in the appearance of the blood of an inflamed part, is the commencement of a chemical process, which, if the vessels do not regain their contractile power, ends in the total destruction of the ordinary properties of that fluid*.

"These facts also point out the intimate connexion that exists, in the animal economy, between chemical and vital action, and give new encouragement to those who have been investigating the state of the blood during disease. They convince us, too, that the later speculators in medical science have too much overlooked the state of the fluids; and have, in their zeal for the destruction of the humoral pathology, neglected to keep in view that the chemical constitution of the secretions of a part is altered very considerably whenever diseased action takes place in it."

Without admitting the theory of the debility of the capillaries during inflammation, I am inclined to admit the force of Dr. Hastings' arguments in favour of a chemical change in the composition of the blood in an inflamed part.

At the present time we are in possession of proofs, that the whole mass of the blood is chemically altered in severe inflammations, and we have many reasons for believing, that the conversion of the blood of an inflamed part into pus, is, as Dr. Hastings has expressed it, "a chemical process, which ends in the total destruction of the ordinary properties of that fluid."

Chemical analysis proves to us that the whole mass of the blood is altered in acute inflammations; as the experiments of the late Mr. Jennings, published in the Transactions of the Medical and Surgical Provincial Association, fully establish.

Simple observation on the blood drawn from the vein of a person suffering under inflammation, shows us that this blood takes a much longer time to separate into its crassamentum and serum, and that a buffy coat is often the consequence of this slow coagulation. Thackrah observes (p. 190, on the Blood), "that blood drawn from healthy persons suffering from inflammation, does not coagulate before eight or ten minutes; whilst blood drawn from cachectic persons will coagulate in four or five minutes. Coagulation commonly takes place, in healthy blood, at the end of six to eight minutes. . . . . Whoever pays attention to this circumstance, will, I am persuaded," continues this lamented and indefatigable man, "accede to the opinion that the speedy occurrence of concretion on the effusion of the blood, affords a reason sufficiently cogent for the discontinuance of depletory measures."

Mr. Thackrah has also pointed out various alterations in the chemical constituents of healthy blood, in persons labouring under inflammation.

From the analysis of the blood of eight patients labouring under inflammation of different important organs, Mr. Jennings has made the following comparison between the proportion of the various constituents of the blood in health and inflammation.

	Lecanu. Health.	Jennings. Inflammation.
Water	780·145	787·625
Fibrine	2·100	7·255
Albumen	65·090	73·250
Colouring matter .	133·000	117·375
Extractive ditto ..	3·055	2·125
Fatty ditto	3·740	1.850
Alkaline salts	8·370	4·650
Earthy salts, iron .	2·100	1.875

Upon this table we may make the following observations: that there is a considerable increase of albumen and fibrin, and a great decrease of the alkaline salts and colouring matter, in the blood of in-

flammation. The other constituents of the blood do not appear materially altered from the healthy standard. Mr. Thackrah, in his *Inquiry into the Nature and Properties of the Blood*, has published a table showing the proportion of serum to crassamentum, in inflammation; and taking the average of these experiments, it would appear that, during inflammation, every ten parts of serum are united to rather more than twenty parts of crassamentum, while, in health, they are united to thirteen parts of crassamentum only. Hence, in inflammation, the proportion of clot to serum would appear to be increased nearly one-half. Mr. Jennings states, that his observations would not lead him to consider the crassamentum nearly so much increased in proportion to the serum, as Mr. Thackrah found it. This difference in the results depends probably on a different length of time being allowed in the two cases for the separation of crassamentum and serum.

The result of numerous experiments performed by Sir Charles Scudamore, and detailed in his Essay on the Blood, indicate that in health 1000 parts of crassamentum contain 3·6 of fibrin, but in inflammation the average quantity of fibrin is 9·62, or the crassamentum contains nearly three times the healthy proportion of fibrin *.

These investigations into the composition of the blood in inflammation leave no doubt that the fluid is chemically altered during that morbid process. Assuming that the blood is endowed with vitality, and that that vitality is dependent upon nervous influence, I next would remark, that, in intense inflammation, some of the most important functions of the nerves are suspended, particularly those which preside over nutrition and secretion. It is in the capillaries where these vital functions are performed, and from which the nutritive matter and the secretions of the different organs are separated in health. Hence we must infer that the blood in the capillaries of an inflamed part has lost the influence of the nervous system, or has lost its vitality.

The moment vital influence ceases in a part, physical causes operate uncontrolled, and chemical changes take place. Hence it is highly probable that the changes observed to take place in the blood of the capillaries in an inflamed part, are part of a chemical process which ends in the total destruction of the ordinary properties of that fluid.

If the observations made by Hastings, Gendrin, Andral, Carswell, and others, related by myself in the Croonian Lectures of 1835, be correct, it would appear that not only blood in the capillaries, but also blood in the large vessels, and extravasated glasses of blood, are occasionally converted into pus.

As the blood, under such circumstances, is altogether removed from the influence of the nerves, I can adopt no other explanation of the cause of this transformation than chemical changes in the component parts of the stagnant and coagulated blood.

Such, then, are some of the more striking changes which take place in the blood, either when it is stagnant in the capillaries or when it is extravasated during inflammation.

* The following conclusions are drawn by the late Mr. Thackrah, from his examination into the state of the blood in inflammation:—"Blood, in inflammation, and generally in diseases of excitement without marked prostration of strength, has three characteristics. (1.) Greater duration of its fluidity; (2.) a larger and denser crassamentum; (3.) the albumen uniformly and greatly increased, and the water consequently diminished. The general increase of solid matter in the blood, in ordinary acute disease, has not, so far as I am aware, been noticed by preceding authors, much less established by numerous and careful experiments. If the state of the blood have a great, nay, the greatest, effect on the nature and character of urgent disease, and if, in such diseases, the blood be found considerably thickened, or, in other words, to have lost a large quantity of water, one great object, it is evident, must be to supply fluid and restore the properties of health."—Thackrah, &c. p. 213.

ON THE FUNCTION

OF THE

MUSCLES OF THE BULB AND CRURA PENIS.

To the Editor of the Medical Gazette.

Sir,

I shall feel obliged if you will, at a convenient opportunity, give insertion in your journal to the accompanying observations.—I am, sir,

Your obedient servant,

F. Le Gros Clark,
Demonstrator of Anatomy in St. Thomas's Hospital.

St. Thomas's Hospital,
June 13th, 1836.

I am by no means solitary, I conceive, in supposing that the usual mode of accounting for the natural retention of the urine is both unsatisfactory and insufficient; and my attention has been latterly more especially directed to the subject, by certain remarks relating to the *sphincter muscles*, in the interesting lectures of Dr. Marshall Hall on the

Nervous System. I cannot, perhaps, better introduce the few observations I have to make, than by tracing the train of thought and reasoning by which I have been led to arrive at the conclusions which will be found in this paper.

Feeling dissatisfied with the hypothesis which supposes the circular fibres about the neck of the bladder to form the retaining muscle of the urine, I proceeded to make careful dissections of these parts in the male and female human bladder, and subsequently in the bladders of animals. The results of these inquiries were,—that in the human bladder there were found, as every anatomist knows, distinct circular fibres surrounding the vesical orifice of the urethra: these fibres are continuous with, and precisely analogous to, the other circular fibres of the bladder, but certainly more aggregated or closely packed in this situation than elsewhere. I think the inference, that these fibres act the part of a sphincter muscle, or retainer of the urine, is erroneous, for the following reasons:—1. Similarity of character and arrangement, and continuity of fibre, would seem to imply similarity of function; 2. the urine is not retained if the membranous portion of the urethra be punctured or lacerated; on the contrary, extravasation is the consequence of such injury; 3. the aggregation of the circular fibres in this situation is simply the effect of the less degree of distention of this part of the bladder, and the resulting minor elongation of the muscular fibres surrounding it; 4. moreover, more power is required for the expulsion of the urine when the bladder is nearly evacuated, *i. e.* when this part of its muscular tissue would be called upon to act: I consider, in short, that these fibres hold the same relation to the bladder, as the (in my opinion misnamed) internal sphincter of the anus does to the rectum; viz. each acting the part of a detrusor when the contents of the cavity which they surround arrives within their grasp.

These may or may not be considered sufficient reasons for denying to the circular fibres about the neck of the bladder the office which has hitherto been ascribed to them; but I shall hope to make my position more clear presently. Having satisfied myself, however, upon this point, I was naturally led to inquire what was really the retaining muscle of the urine; and I was the more prepared to answer this query in consequence of an idea which had already presented itself to me whilst reading Dr. Hall's lectures. I allude to a supposition, that the accelerator urinæ is the true sphincter of the bladder. Most of my readers are already acquainted—if not by perusal of his work, through the medium of this journal—with the leading facts upon which Dr. Hall grounds his observations respecting a system of nerves, named by him the "excito-motory:" at any rate it will be merely needful here to allude to the remarks which more immediately bear upon the subject under consideration. They may be briefly stated to the following effect:—There are certain muscles whose action is more immediately under the control of a set of nerves, whose source of influence is independent of the brain, and, therefore, of volition; but whose axis is in a certain portion of the spinal marrow, as proved by experiment after removal of the brain: these muscles, moreover, only act under the control of this axis through the medium of a certain stimulus applied to a given sentient surface, which stimulus it is essential should be conducted to the centre of the system, and thence reflected along another set of nervous filaments to the muscle to be so influenced. This statement implies that the system consists of three necessary parts; viz. excitor nerves, motor nerves, and a centre or axis of reflection, the *true spinal marrow*. Now the sphincter muscles are peculiarly under the influence of the excito-motory system, though by no means excluded from the control of the brain; so also is the accelerator urinæ, as is more particularly evidenced in its action as ejaculator seminis*. This fact, taken in conjunction with my inference respecting the insufficiency of the circular vesical fibres to act as a retainer of the urine, induced me first of all to conjecture this additional function of the muscle of the bulb. It is, of course, unnecessary for me to point out how fully capable this muscle is, by position and connexions, of performing the office I wish to assign to it. I thought, however, that comparative anatomy might assist in either confirming or refuting

* These facts must be assumed by the reader: a full illustration of the subject will be found in Dr. Marshall Hall's Lectures on the Nervous System, which are now published.

my position; and I need scarcely state, as a result of my examination, that the accelerator muscle exists in the ox, sheep, horse, &c. But the peculiar object of my dissections was to compare the bladders in the two sexes of the above-mentioned animals, and I was gratified—for it was the first time I had made this dissection, and I had not consulted books—to find my expectation of seeing an analogous muscle in the female not disappointed.

The urinary passage in these animals (the cow, for instance) is rather like an elongation of the neck of the bladder than an urethra, being thin and membranous, about four inches long (I speak from memory), and nearly an inch in diameter, narrowing only a little before terminating in the meatus, which is situated within the vagina. The muscle of which I speak surrounds the free surface of this passage, commencing about two inches from the neck of the bladder, and extending to the external orifice, or meatus urinarius. It is connected by a strong fibrous expansion on either side of the vagina, and forms a thick and strong fleshy mass of red fibres over the urethra, about two-thirds of the circumference of which it thus surrounds. Now, although there are similar circular fibres about the neck of the female bladder as are found in the male, it is clear from the diameter and unresisting structure of the urinary passage, as far as the muscle above described, that the urine finds its way freely beyond them: nor do I think that the necessity for the existence of this muscle, for the purpose of evacuating this sacculated urethra, at all invalidates the position that it is the retainer of the urine; and it, of course, is not required for the additional office it has to perform in the male—viz. the ejection of the seminal fluid.

Thus far, then, it might be said that my dissections were satisfactory; but the chief difficulty remained—a difficulty which must have already presented itself to such of my readers as have troubled themselves to peruse thus much of my paper: I allude to the means by which the urine is retained in women; and this I must acknowledge myself incapable of fully explaining; *i. e.* setting aside the supposition that the circular vesical fibres form a sphincter. I have as yet in vain sought any muscular structure about the female urethra: the analogous muscle to the accelerator of the male is recognised in the sphincter vaginæ, whose connexions are such as can but little, if at all, control the flow of urine. I think, however, much may be explained, even placing muscular action quite out of the question. The female urethra consists of a dense and compact fibrous tissue, erectile in character, and possessed of considerable elasticity, as evidenced by its capability of recovering its tone after very great distention. I am led to the conjecture, though by no means to the conclusion, that this structure may unaided act the part of a passive sphincter (if I may be allowed the expression), and for the following reasons:—

1. Incontinence of urine following dilatation of the urethra, as for the extraction of stone, would seem to be the consequence of loss of tone in this elastic structure, rather than of over-distention of muscular fibre.

2. Pure cases of spasmodic retention of urine are probably not met with in women; but inability to evacuate the bladder occurs either in hysterical or very feeble individuals, in whom the cause may be traced to either partial or complete paralysis of the detrusor muscle—a condition which we meet with, though in a very mitigated form, in boys, and even men, who are incapable of commanding the expulsive action of the bladder unless alone and unobserved.

3. Again, incontinence of urine appears to have a different origin and cause in the male and female: in the former occurring usually in an irritable habit, and arising from a morbidly excitable condition of the bladder, which suddenly and at intervals expels its contents; in the latter, usually occurring in persons of a relaxed or hysterical diathesis, in whom there is total incapability of retaining the urine. Enough, however, has been said upon this questionable point, which, though interesting as bearing upon the immediate subject of these remarks, possesses less of practical utility. I may now proceed to illustrate further my views with respect to the accelerator muscle, more particularly by reference to pathology, and then conclude by indicating the practical points which these views tend to elucidate.

In the first place I consider the accelerator urinæ and sphincter ani

to hold an analogous relation in the following points; 1. under ordinary circumstances each is in a state of constant tonic contraction, more or less decided according to necessity; 2. by this condition each commands its separate outlet; 3. they contract and are relaxed simultaneously: thus, the act of coughing, or any forcible expiration, cannot take place without the contraction of both these muscles, by which their several outlets are closed; nor can evacuation of the rectum take place without a similar evacuation of the distended bladder, or the converse where a previous tendency exists in consequence of relaxed bowels.* These facts would seem to imply an analogy of function, besides pointing out the interesting fact that these muscles form a part of the respiratory aparatus: but as this species of evidence might be much multiplied, I shall confine myself to a pathological proof of my position. The accelerator muscle is the seat of spasmodic stricture. Now by this it is not meant that the urine is merely retained by this muscle after it may have passed any internal sphincter, but, as I am informed by Mr. Tyrrell that in stricture of this sort the urethra behind this muscle is distended with urine, I have little question that the same will be found the case in ordinary instances of distended bladder. Again, rupture of the urethra behind, or in the bulbous portion, is invariably followed by extravasation of urine; why should this occur if the sphincter or retaining muscle were still perfect?

This, however, must suffice for the illustrations, and I will now state briefly the deductions which may be drawn from the above facts. 1. Whilst the bladder is only moderately distended, the resistence of the neck and the prostatic portion of the urethra is sufficient, without the aid of muscular contraction, to prevent the escape of urine: 2. when the bladder becomes distended, the urine passes freely forwards as far as the bulb, or in other words, as far as the accelerator urinæ, the action of which arrests its further progress: 3. that the contraction of the muscle of the bulb is proportioned to the necessity for its sphincter action; *i. e.* it acts in the direct ratio of the *vis a tergo*: the amount of this resistance may be judged of in cases of compression of the spinal cord, where these muscles are still influenced by the excito-motory system of nerves, although the power of expelling the urine is lost, with the extinction of volition; the bladder will suffer enormous distention in such cases before it parts with its contents: 4. the urine is retained in the horse, ox, mare, cow, &c., in a similar way; in woman it appears probable that the analogous agent is principally passive resistance; but on this point I speak with diffidence.

In directing attention to the practical inferences connected with these facts, I need merely point to their interest, as well as importance, in elucidating the causes, pathological conditions, and treatment of various forms of stricture, especially spasmodic. Such deductions, however, my readers are fully capable of forming for themselves, without the necessity of my prolonging the present paper by further illustrations. I am fully aware of the many deficiencies, and probably a certain amount of inaccurate reasoning, which the present observations contain, and am, perhaps, though unconsciously, treating as novel what may have been already taught by others: with this apology I shall close my remarks upon the present subject, and in conclusion notice briefly the action of the perineal muscles as connected with the phenomena of erection.

The dissections and microscopic observations of Professor Müller are certainly interesting, as tending to demonstrate the *actual condition* of the capillary vessels of the corpora cavernosa penis, during the distention of the erectile tissue of that organ; but they leave us as much as ever in the dark respecting the *ultimate cause* of such distention. Nor can I think that the minute dissections by which that eminent physiologist has pointed out the connexion of the nerves of the penis with the pelvic ganglia, &c., are likely to throw much light upon the subject in question*.

The view which Mr. Houston took of the subject, seemed to promise a more ready explanation of the phenomenon; and during the period that I was studying at Dublin, I had the oppor-

* Questionless this is much dependent upon the contraction of the abdominal muscles overcoming in each instance the impediment at the outlet; all I argue for is, that such contraction for the purposes last mentioned, is accompanied by simultaneous relaxation of both these muscles.

* A concise detail of these facts has appeared in the MEDICAL GAZETTE, at intervals, during the last few months.

tunity of witnessing a dissection by the above gentleman, in which muscular fibres were seen crossing the dorsal veins of the penis. I have, however, since sought in vain for similar fibres, and cannot help coming to the conclusion, that although they exist sometimes, they are not invariable, and therefore not essential to the production of erection.

Is the action of the acceleratores urinæ and erectores penis sufficient to account for the phenomenon in question? I acknowledge that a careful consideration of the subject has inclined me to answer this self-imposed query in the affirmative. But let us give the matter a little reflection. We have certain textures, whose cellular or spongy nature renders them capable of taking on an altered form and size, the extent of such change being proportioned to the amount of fluid contained: these structures are the corpus spongiosum, with the glans penis, and the corpora cavernosa penis; and the fluid by which their distention is effected is the blood. Now this distention must be the result of a suspension of equilibrium between the conveying and returning vessels; *i.e.* either the arteries must convey more blood to the penis, or the veins must return less than usual. It is under the latter supposition that I would explain the erection of the penis, and in the following way:—The muscle of the bulb is capable of commanding the corpus spongiosum, and in like manner the muscles of the crura penis make pressure upon the corpora cavernosa. Such compression, however, it may be said, tends equally to obstruct the circulation in both directions; but this is not the case: the power of the arterial circulation may be fully capable of overcoming the resistance offered by an amount of pressure, by which the less active flow of blood through the veins is for a time impeded or arrested. I infer, in short, that by means of the pressure exerted by these muscles upon the several bodies they surround, and the consequent resistance offered to the free return of the venous blood, that the distention of these erectile tissues ensues; and I may here remark, this supposition is by no means interfered with by the facts narrated by Professor Müller relating to the distribution of the ultimate radicles of the arteries of the penis. Nor would I, indeed, exclude the arteries from a participation in the production of the phenomenon, probably by an increased local activity; but I conjecture that this must be of secondary importance. Moreover, it is far from improbable that a tendency to vacuum in these spongy textures, which may be set up or augmented in some inexplicable way, may further aid in producing the same effect. Lastly, the obstruction to the venous circulation is increased by compression of the dorsal veins of the penis against the pubic arch, the result, likewise, of the action of the erector muscles.

I shall conclude by considering one or two pathological and other phenomena, which, although they might, on a partial view of the subject, appear to militate against my inference, will, in reality, tend materially to support its probability; I allude to certain conditions under which priapism occurs. For a proper understanding of the instances which I shall adduce, it is necessary to bear in mind the remarks already made in reference to the excito-motory system of nerves.

Every one is aware that erection of the penis, accompanied occasionally by seminal emission, is a concomitant of death by hanging. This surely admits of an easy explanation, by allowing it to be the effect of a spasm of the perineal muscles. Cerebral influence may be suspended, and still this result ensue. Nor can we fairly exclude the cremaster muscle from a susceptibility of being similarly controlled: the frequently corrugated condition of the bladder, or even of the stomach, indicates how universal the spasm is in persons who thus meet their death. But priapism, accompanying paraplegia, the result of compression of the spinal cord from injury, probably offers, in its accompanying phenomena, the most interesting illustration of the point in question. We find a person with fractured spine, motionless and unconscious of any part of his body below the seat of injury; and yet we desire to account for the priapism which exists by ascribing it to muscular contraction: this appears paradoxical, but let it be remembered that the action of which I speak is independent of the brain—it is under the control of the true spinal centre. Now it has been stated, that, for the production of this muscu-

lar action, a certain stimulus is required, which must be first conveyed from the recipient surface to the axis in question, and thence reflected to the muscle to be influenced: how, then, is this effect produced in the instance under consideration? Principally, I think, by stimulus applied either to the mucous membrane of the bladder itself or that of the urethra. I formerly thought that distention of the bladder acted by mechanically obstructing the return of blood, in producing priapism in these instances, until I found that withdrawing the water was by no means necessarily followed by a cessation of the phenomenon. I was thus led to inquire further. 1. I would suggest that the mucous membrane of the bladder might be made the medium of communicating a stimulus dependent on the altered character of the secreted urine; and I think it would be interesting to watch whether, in these cases, the priapism is at all proportioned to the amount of acrid matter contained. Since the idea struck me, the opportunity of testing its probability has not occurred to me. 2. I conceive that the lining membrane of the urethra may be made the medium of producing this reflected impression, by the stimulus of local excitement. In proof of this last point, I may cite the opinion of Sir Benjamin Brodie, who, in his interesting paper on "Injuries of the Spine," lately read before the Medico-Chirurgical Society, stated that he believed priapism might be the consequence of introducing the catheter, for the purpose of evacuating the bladder. The production of chordee, in gonorrhœa, is probably explicable on the same principle; the exciting cause, in this instance, being inflammation of the urethra.

The deductions, then, which I should draw from the preceding observations, are the following:—1. That erection of the penis is dependent *principally* on a retardation of the reflux of the venous blood. 2. That such retardation is effected through the medium of pressure, exerted by the muscles of the bulb and crura penis, upon these erectile tissues. 3. That the result in question is probably aided collaterally by an increased local activity of the arteries of these parts, which may possibly be analogous, in its hidden cause and *modus operandi*, to the condition by which the vessels are influenced in the phenomenon of blushing; and which may, by its impression, be the primary impulse or stimulus by which the action of the above-named muscles is excited for the completion of the desired effect. Still it may be argued, admitting the correctness of what has been said, we are as far as ever from explaining how, under ordinary circumstances, these muscles are themselves excited to action—how, in short, the sexual feeling is capable of inducing so singular a result as that which we have been endeavouring to account for. Granted; but I would ask, in return, do we yet, or are we ever likely to understand how we connect the *will* with the *action?* I conceive it will be found an equally difficult task to explain the *modus operandi* of the imagination over the pubic vessels and perineal muscles, and of volition over the general muscular system.

I have once again to apologize for the hurried manner in which these observations have been thrown together: my excuse must be, that I am desirous of calling attention to the subject, in the hope of eliciting some remarks by which the probability of my suggestions may be increased or diminished. I need scarcely add, that although any remarks confirmatory of my inferences may be more gratifying to me, I shall feel equally indebted for any facts which may tend, by weakening my position, to bring us nearer to the truth.

VACCINE REPORT
OF THE
BRIGHTON LYING-IN INSTITUTION FOR 1835;

WITH REMARKS ON THE PROBABLE ADVANTAGES OF EARLY AND RE-VACCINATION.

To the Editor of the Medical Gazette.

SIR,

YOUR having kindly favoured me by giving insertion, last year, to the Vaccine Report* for 1834 of the Brighton Lying-in Institution, emboldens me in requesting a vacant place in your valuable columns for that of 1835.

I am, sir,
Your obedient servant,
P. M. LYONS, M.B. A.M.
Physician-Accoucheur to the Brighton Lying-in Institution, &c. &c.

23, Regency Square,
June 4, 1836.

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* Medical Gazette, June 6, 1835.

Review of the Vaccine Register of the Brighton Lying-in Institution, for 1835.

Total number of parturient women registered during the year	272
Of whom were irregularly registered	7
— were pregnant of their first child	4
	261

Total number of children, offspring of the above (261)		1097
Of whom were vaccinated	540	
— — inoculated	19	

559 = ½, plus a fraction, protected (?).

Took the natural small-pox	124 = 1 in 9
Died without being exposed to any of the three preceding affections	230 = 1 in 5
Living, but not yet submitted to ditto	184 = 1 in 6
	1697

538 = ½, minus a fraction, not protected.

Of those vaccinated (540) had subsequently a very severe species of small-pox	3, or 1 in 184
Died	1, or 1 in 540
Had a very mild description of pock	14
Were infected, but had no note taken of the species..	13
	27, or 1 in 20
Total........	31, or 1 in 17

Of those inoculated (19) took the inoculation very severely............	2
Had secondary small pox, but of what kind is not noticed	3
Had a pustular eruption, which the mother believes to have been secondary small pox..................	2
Had no further inconvenience than ordinary	12
	19

Of those infected with original variola (124), died..........	11, or 1 in 11
Became blind	1, or 1 in 124
Had the disease severely	25, or 1 in 5
Had it mildly	87, or 2 in 3
	124

From the above we learn, that of 1097 children, 538 had never been placed under any protective influence; of whom, 230 were removed by death before they became vehicles for the propagation of small-pox, while 124 had already served as connecting links in the chain of disease; and there still remained, at the time of registration, 184 new subjects, varying in age from ten months to three years and upwards, ready for the reception and diffusion of variolous infection, which is essentially, if not altogether, indebted, for both its present and future existence, to a continued series of similar supplies.

Of the 124 who took the infection primarily, 87, or two-thirds, had it mildly, one of whom was a child a fortnight old; while those who experienced the disease in a greater or less degree of intensity, amounted to a third of the whole.

Of those who were inoculated (19), two suffered severely from the disease even thus modified; and of the remainder, three, or one-sixth, were not protected from again experiencing the disorder, though in a milder form, perhaps, than they might otherwise have done. Two more were also suspected to have had it, though, as they were not seen at the time by any medical man, no inference has been deduced from these cases.

Out of the 540 who were vaccinated in the first instance, we find that thirty cases of varioloid disease occurred, or in the proportion of one to seventeen; from which, if we deduct fourteen cases marked as mild, and thirteen on whom no notes have been made, and which we therefore class under the head of mild, the proportion of the latter description to the whole number of vaccine cases is as 1 to 17, while the severer are as 1 to 184, and the deaths as 1 to 540, proportions certainly less than those of 1834, but not so much so as to induce us in the slightest degree to question the veracity of those on whose trouble we must depend for the correctness of our calculations, especially as even now they do not agree with those made by Mr. Field*, of Christ's Hospital, whose cases, taken collectively for a period of nine years, are in the ratio of 1 to 20; while those of Mr. Lawrence†, of the Royal Chelsea Asylum, are, of those who previous to admission had had small-pox, 1 to 97, those vaccinated before admission 1 to 124, those vaccinated subsequently 1 to 210, and out of the whole combined numbers the deaths are as 1 to 1250. But small as those

* MEDICAL GAZETTE, June 6th, 1835.
† Ibid.

proportions are, both in appearance and reality, they may not be deemed extraordinary, when it is considered that the subject of those gentlemen's calculations are in every possible manner excluded from the liabilities of infection, in which respect the children of the Royal Asylum possess greatly the advantage over those of Christ's Hospital, by the peculiar circumstances which confine them almost altogether to their fixed abode, while those of the latter Institution have a greater facility of contamination in the course of their visits to their families, &c., but still by no means equal to those who form the subjects of calculation in the foregoing tables, whose families being of the very humblest and poorest description, are placed under circumstances most favourable to the spread of disease—namely, bad diet, bad clothing, crowded neighbourhoods, foul air, and a constant and almost unavoidable intercourse with those already labouring under disease.

That continued contact powerfully tends to the rapid spread of variola, even among those who, by careful vaccination and other proper precautions, are otherwise placed in the most favourable situation to escape it, is strikingly and lucidly pourtrayed by Mr. B. Bell, in the first number of the Edinburgh Medical and Surgical Journal for the present year, while he forcibly illustrates the control which vaccination still continues to exert over this disease.

The inferences which we would deduce from these facts are, that were vaccination universally adopted as a system, at a sufficiently early age, variola would cease to exist; and though we might have a few occasional cases of varioloid disease, these could be held in check by a second vaccination at a more advanced period; but that a proper degree of influence is not exerted over the minds of that class among whom the disease in question uniformly breaks out first, and from whom, after committing extensive ravages, it slowly, and, as it were, sporadically, spreads among the higher circles—a fact which any extensively employed practitioner must have frequent opportunities of verifying. In the absence of some law for the enforcement of vaccination at an early date, it were very desirable if the heads of all public schools, charities, &c. were to make a certificate of *satisfactory vaccination* one of the conditions of admission to the benefits of their establishments.

A question here arises as to the earliest age at which the vaccination of a child should be first attempted—a question which has been answered by Mr. Grantham* and Dr. Murray†, the former gentleman limiting us to about nine months, and the latter to six, both of whom deduce strong cases in illustration of their arguments: in reply to which we would beg to observe, that as the constitutions of children are different, so also will be found their susceptibility of infection, while the degree is only to be ascertained by an experiment which, in our opinion is uncalled for, and far from justifiable—an opinion based upon a case in our own practice, the results of which have been attended with feelings of deep regret.

Of the early susceptibility of some infants, one case has been given in the foregoing tables, wherein a child, aged but a fortnight, became infected with, and passed through, the various stages of variola, though of a mild character. Another has occurred in our own practice, as alluded to above, which fully establishes the susceptibility of infection of some infants, at the very earliest ages.

Elizabeth Hazelgrove, pregnant of her first child, at the period of her accouchement resided with her mother-in-law, three of whose younger children were either labouring under, or convalescent from, small-pox; one of whom, not yet quite convalescent, was by our order removed from the bed of the parturient woman only a few hours before the accouchement took place.

For the first twenty-four hours after the birth of the child nothing remarkable was noticed, but on the second day it was evidently unwell, and so continued, gradually developing the primary fever until the fifth day, when our attention was drawn to a thickly spread, but most minute, vesicular eruption, which covered the arms, legs, chest, and abdomen of the infant, which progressively developed itself until the eleventh day, when the infant became a mass of confluent small-pox, of which it died on the fourteenth day, leaving on our minds the firm conviction that we had, to a certain extent, been accessory to

* Med. Gaz. 1835 and 1836, *passim.*
† Ibid. August 1, 1835.

the death of the child, by not vaccinating it on the day of its birth, instead of intrusting it to what we then considered to be, the protecting influence of extreme infancy.

As an immediate result of this case, we now frequently feel ourselves called on to vaccinate as early as the third week, wherever little patients are exposed to the immediate influence of small-pox, though, where it can be done with safety, we prefer leaving them until the fourth month, after which the period of dentition rapidly sets in with many children, and thus retards vaccination, from an unwillingness on the part of the mother, as well as on our own, to expose the infant at one and the same moment to a twofold irritation. This plan of practice we have had occasion to pursue in four different cases during the last month, where the respective ages of the infants were 3, 7, 9, and 11 weeks; and with a single exception the vesicle went through its regular and proper stages, while lymph taken from the same arms, and under the same circumstances, completely failed in children of a much more advanced age, and in two cases even after a second trial.

Hence arises another question. Granting that the vaccine virus, if introduced into the constitution at the earliest ages, may not in every case extend its protection over a prolonged period of life, what is the objection to a second vaccination at a more distant date, say 5 or 7 years, while the successful issue of the first, by securing our patient for a given time, diminishes the number of those who might otherwise be susceptible of variola, and impresses on the poorer classes the conviction of the necessity of early vaccination, instead of leaving their children unprotected until the 2d, 3d, and sometimes even to the 7th year, as we have frequently occasion to know they do.

Some other points connected with this subject have been so recently and ably handled by Mr. Aikin, that we feel any farther notice of them is at present unnecessary, and shall therefore conclude by reiterating two questions already published in our former report. First, are these constitutions more than ordinarily susceptible of secondary variola? On this subject we have received a letter containing some most interesting facts, from a highly respectable non-professional friend, which we are withheld from annexing to our present paper through a desire, if possible, to obtain a large number of similar and well-ascertained facts, before we make any deductions from them, as well as through fear of now being deemed *prolix usque ad nauseam*. Our second question, which has in some manner been recently repeated by a correspondent, who signs himself "An Inquirer," is, can the vaccine virus be so modified by any state of the body different from that of health, small-pox excepted, and co-existent with the virus, as to weaken its force, or to inoculate the patient with a fresh disorder?

REMARKS ON MR. RADLEY'S PLAN OF TREATING FRACTURES.

To the Editor of the Medical Gazette.

SIR,

HAVING lately read an account of Mr. Radley's new mode of curing fractured limbs without the aid of splints or tight bandages, and believing that the plan of treatment recommended by that gentleman will, in many cases, not be successful, I beg to request that you will do me the favour to publish, in your highly respectable journal, the following observations on that important subject.

Mr. Radley, in introducing to the notice of the profession his new plan of treating fractured limbs without the aid of splints, condemns, in no measured terms, the practice of Sir Astley Cooper, and boldly affirms that the rules laid down by that distinguished surgeon, in his excellent Treatise on Dislocations and Fractures, are valueless and absurd,—that splints, and all other mechanical contrivances, are both useless and hurtful,—and that nothing is required for the cure of fractured limbs except a pillow, a bandage, and a lotion. Now, all this would be very well if a broken bone, like a piece of wood or iron, would remain in the position in which it is placed, but it happens to be surrounded by muscles, which, in consequence of the irritation caused by the rugged ends of the

broken bone, often contract so powerfully as to render it, in many cases, a much more difficult matter to prevent displacement than Mr. Radley would wish us to believe: indeed, it is this very difficulty which has led surgeons to have recourse to splints, and to other mechanical means, with the view of counteracting the contractile power of the muscles; and surely, before condemning the whole of the ingenious mechanical contrivances which have been used and approved of by the most eminent men in the profession, Mr. Radley ought to have shewn in what other way, and by what other means, this action of the muscles can be overcome.

On this important point Mr. Radley says nothing which to me, at least, is at all satisfactory; indeed, all he does say is, that the easy position in which he puts a limb never fails to qiet the muscles and to control their power; but I should like to know in what position Mr. Radley would place a limb in the case of an oblique fracture of the middle of the femur, which would *relax the whole of the muscles of the thigh*, so as to prevent the broken ends of the bone from being displaced by their action. In my opinion, there is no such position. In a case of this kind, place the limb as he will, *some* of the muscles of the thigh will be put on the stretch, and others will be partially relaxed; and as muscles, when in a state of tension, or even of partial relaxation, do not remain quiet and powerless (as Mr. Radley's language would lead us to believe), but, on the contrary, contract—aye, and powerfully too, particularly when irritated by the sharp-pointed ends of a broken bone—what, in the case now under consideration, is to prevent this action of the muscles from pulling up the inferior portion of the obliquely fractured femur? The muscles which are inserted into the fractured part of the bone, and the easy position of the limb, says Mr. Radley. No such thing, say I. The muscles which are inserted into the broken part of an obliquely fractured femur, will (I speak from experience), in a great majority of cases, be found to be quite unequal to the task; and no position in which the limb can be placed, will, without other aid, enable them to perform it. Indeed, it is not long since I saw a case in which the lower end of the femur was drawn up amongst the muscles of the thigh; and, after the ends of the bone had, in the usual way, been brought into apposition, in whatever position the limb was afterwards placed, and many were tried, the moment the surgeon relaxed his hold, the bone was again forcibly drawn up. Now in all cases of this description, and, indeed, in every case in which the inferior end of the fracture has *once* been drawn to any considerable distance above the superior, no matter how short a time it may have been in that situation, I fearlessly affirm that a plan of treatment very different from that recommended by Mr. Radley will be required to enable the surgeon to accomplish a cure without deformity of the limb; and I think that few practitioners who have had much experience in the treatment of fractures will disagree with me on this point.

But Mr. Radley appears to care very little either for muscles or their action; indeed, they seem quietly to yield to the magic of his touch, for he tells us that he has never found cause to attempt to keep the fractured ends of bones together by splints and tight bandages, because he has never given the muscles reason to be so angry with his treatment as to displace the bones; and that in no case of fracture whatever (that of the radius sometimes excepted), is there any thing more required for the cure than a strapped pillow with its padding, a tailed bandage, and such lotions and dressings as it may be proper to apply to the surface of the limb. Here, then, Mr. Radley asserts that every kind of fracture of the os femoris may be cured (without deformity of course) merely by means of a strapped pillow, a tailed bandage, and a lotion, or some kind of dressing for the surface of the limb; and, as a proof of the correctness of this assertion, he brings forward three cases of fracture of the femur, which were treated by himself, and publishes them in the Lancet.

But will the surgeons of the present day require no better grounds than Mr. R.'s assertion, and his cases, to satisfy them that they ought to abandon the means which they have, hitherto, found to be successful in the treatment of fractures? Will they, without farther proof of the correctness of Mr. Radley's views, at once consent, in opposition to their reason and to their experience, to become his disciples? No, it is not reasonable to expect they will, and yet the Lancet

in a late number, after publishing, in confirmation of Mr. Radley's plan, the history of a thigh bone which was broken into splinters just below the great trochanter, and also in another place near the inferior extremity, and which, wonderful to relate! was (by sorcery, I suppose) cured, without deformity, in the short space of fourteen days, exclaims "notwithstanding, however, all that has been said on the subject, the broken limbs of the patients in the London Hospitals are still packed and screwed into wooden and tin cases." Now, I would ask, does the writer who makes this remark seriously think, that the mere publication of so apocryphal a case as this, in addition to Mr. Radley's three, will, or rather ought, to induce the surgeons of our hospitals to break their splints into pieces, to demolish their fracture boxes, and, in future, to intrust such of their patients as have obliquely-fractured thigh-bones to the care of nature and of a pillow. Truly, if they were to do so, they would deserve to be forthwith removed from the situations which they now so honourably hold.

But the truth of the matter most probably is, that your worthy contemporary delights in giving his readers, now and then, a treat, by presenting to them some of the most absurd novelties in the practice both of physic and of surgery; and it does not, I think, require the spirit of prophecy to enable any one to foretel that Mr. Radley's plan for treating fractured limbs, notwithstanding the support of the journal which he patronizes, will, at no distant period, sink into everlasting oblivion.

In conclusion, I shall merely say, that having had much experience in the treatment of fractures, I have considered it to be my duty to make the above observations, for the purpose of preventing some of the junior members of the profession from adopting, without due consideration, a practice which might reflect discredit upon themselves, and be the cause of lasting misery to some of their patients.—I am, sir,

Your constant reader,
And very humble servant,
INVESTIGATOR.

London, June 14, 1836.

CASE OF EXTENSIVE POISONING WITH SINGHERA,

Occurring in a Native Spirit-Shop at Benares.

By R. N. Burnard.

On the morning of the 26th February, 1834, I was summoned by an early and hasty message to the City Hospital, where it was stated that a number of persons were being brought in, labouring under symptoms of poison, and that many were already dead from the same cause. On my arrival, I learnt that a number of men, about seventy, had been drinking at a Native spirit shop the evening before, and that shortly after, the whole of them had been attacked with the symptoms for which my aid was requested. Eighteen had died before being brought to the hospital, and the number of those brought in for treatment speedily amounted to forty-three. The symptoms under which they laboured were heat and pain of the stomach, not increased by pressure; vomiting, in some with violent spasmodic effort; constriction and burning sensation at the upper part of the œsophagus; twisting of the tongue, in some instances protrusion of it; and cramps of the legs and arms. The sensorium was little affected; the pupils natural; pulse small and weak, and in none exceeding 65; in some it was imperceptible at the wrist; the fingers shrunk and shrivelled, as in cholera; and the skin covered with partial clammy sweats. The urine was, in almost every instance, suppressed; and in scarcely any, up to this period, had the bowels been acted on. The vomiting consisted of thin watery fluid, tinged green, and in two or three was bloody; no odour of spirit was perceptible in what was ejected, but as it appeared that they had vomited copiously before, its absence may be accounted for. Emetics were given to those in whom there was reason to suppose that any remains of the poison existed, and subsequently, as well as to those who appeared more exhausted and sinking, liquid ammonia. To the slighter cases, the common effervescing draught was given freely, and with relief. In two cases in which vomiting was not known to have taken place freely, I had recourse to the stomach-pump; in the first, the introduction of the tube (which was resisted firmly by the constriction of the œsophagus) induced free vomiting, and in the second

the stomach was found empty—vomiting, to a small extent, had taken place just before, and the patient, on the withdrawal of the tube, said he had been vomiting copiously the whole night. Evacuations from the bowels, when they did begin to take place, were of a thin greenish watery fluid, and were promoted by castor-oil. Under this treatment, all who were brought in alive recovered, nor were there in any of them those symptoms of inflammation of the stomach which I at first apprehended would ensue. In a few, in whom symptoms of irritation continued in the evening, a dose of calomel and opium, with castor-oil repeated on the following morning, removed all unpleasant effects; and in the course of the day succeeding that of their admission, the whole were discharged well.

Having administered to the urgent symptoms of the living, I proceeded to examine the bodies of the dead. These consisted of eighteen men, and a goat which had eaten of the residue of the steeping-pot. There was little or no distortion of the features generally, and no swelling of the body; in two or three the lips were very livid. In none of the stomachs was there any odour of spirit remaining, and the contents generally appeared to be the secretions of that viscus itself, tinged with bile, and, in a few, a small quantity of blood: in two or three were some trifling remains of the preceding day's meal; in one some dhye, and in another some ghee: these two last appear to have been taken medicinally. The interior coats of the stomachs presented different appearances, from a perfectly natural state to a moderate degree of inflammation; but in none had this arisen to a highly remarkable degree, nor did any of the bodies present appearances from which I would have ventured an opinion of the cause of death, had I been unaware of the attending circumstances. In one case I examined the œsophagus, trachea, contents of the chest and the intestines, and in another the brain, and found all healthy. Although satisfied, from the symptoms, that the poison was of vegetable origin, I deemed it proper to apply the tests for arsenic and copper to the matters ejected by some of the patients, and to the contents of some of the stomachs; but without any indications of either. The stomach of the goat was much distended with the refuse of the steeping-pot, consisting of the flowers of the mowah, intermixed with leaves and some grain; but I could not detect in it any substance to which I could attribute a deleterious character.

From the above sketch it will be evident that there was considerable difficulty in determining what the poison was; the symptoms indicated it to be of a vegetable origin, and of the irritating class. The root "singhera" was the only article of this description I was acquainted with, and my knowledge of this was very limited, being confined to a single case, in which it had been resorted to for the purpose of suicide, and the symptoms so exactly corresponded to those now before me, that my suspicions attached themselves to it, and I expressed myself to the magistrate accordingly. In the afternoon I accompanied him to the liquor shop, which had been under the guard of the police, from the first discovery of the mischief in the morning, where we instituted a strict scrutiny, to understand which it is necessary to describe the place and the mode of preparing the liquor.

A number of large earthen jars are sunk in the ground, to be used as steeping-pots; and in each of these a quantity of mowah flowers, and goor, or molasses, are mixed with about twenty quarts of water, and allowed to stand for seven or eight days, until it is so far fermented that the froth rises above the top of the pot; it is then removed to the distilling pot, which is also an earthen jar of similar size, built into a furnace and placed obliquely; to its mouth is luted another jar as a condenser, and from it the liquor distilled is conveyed by a hollow bamboo, into vessels appropriated for it. From the twenty quarts, about sixteen are thus obtained, and the liquor in this state is called phool. It is not ordinarily sold or drank in this state, but mixed with two-thirds or more of water, which is done at other large jars sunk near the entrance of the spirit shop. The usual price of it, thus diluted, is two pice per seer, and the quantity drank by each individual is calculated by pice, as such a one is a drinker of two pice or three, as the case may be. Different articles are said to be mixed with the ingredients, for the purpose of rendering the liquor stronger; and I have since this unfortunate occurrence learned that both singhera and buch-nag (a root of a similar character) are used for this purpose; and it is said

that half a chittack of singhera will double the strength of the above quantity (sixteen quarts), and thus enable the vender to double his profits: these additions are always made clandestinely, and the drinkers do not appear to be aware that such additions are made.

In our researches at the liquor shop, which comprised the steeping-pots, still, and jars in which the liquor is diluted, and from whence it is given out to the purchasers, we were unable to detect any deleterious article, but the circumstances of the goat having eaten of the refuse of the steeping-pot, determines that to have been the place in which the poison was mixed; but this having been thrown away and mixed with the contents of other pots, we had no opportunity of pursuing a further inquiry with it. One of the servants of the liquor shop having quitted his place immediately after serving out the noxious liquor, and having absconded from his house, suspicion fell on him, and his house was searched, but nothing found in it to confirm the suspicion. A Buniya, however, was found, who stated that he had sold a quantity of singhera to this man, and the man himself being apprehended a day or two after, confessed that he hadput singhera, in coarse powder, into the steeping-pot. What quantity was used, I have not been able to ascertain; but there are strong suspicions of a more nefarious motive than that of increasing the strength of the liquor. As these suspicions do not belong to the medical history of the case, and will shortly undergo judicial investigation, it is unnecessary to advert to them here.

We are lamentably ignorant of the nature of these and other vegetable poisons in use amongst the natives of Hindoostan. Hunter mentions them merely as "a "kind of poison, and a vegetable poison;" Ainslie does not mention them at all; and in Gladwin's *Ulfaz Udesirah* (1239), the "umgerga-zehse" is given as the Hindee synonyme of "Keroonus-simbel,"—"a poisonous plant, the filaments of which are sometimes found amongst Indian spikenard." Richardson calls spikenard "Sumbul Hindee." None of these give any information of the plants from which these roots are obtained, and all I can learn here, is, that the roots both of singhera and buch-nag are brought in considerable quantities from Nipal, and sold by the Punsarees, or native druggists, in the bazar, at about eight annas a seer. They are used powdered, and mixed with oil, as an external application in cases of gout and rheumatism. I send a specimen of each of the roots, and, in evidence of the activity of singhera, I may add that a friend who was with me when the specimens were brought, bit off a small portion, certainly not two grains, and was shortly after attacked with burning of the throat, and subsequently of the stomach, with profuse flow of saliva which annoyed him for two days*.

CASE OF
ACCIDENTAL CURE OF AN OVARIAN CYST.

To the Editor of the Medical Gazette.

SIR,

SHOULD the subjoined case appear to possess sufficient interest to merit an insertion in the columns of your periodical, it is much at your service; and I shall be very happy to afford any of your readers an opportunity of seeing the subject of it.—I am, sir,

Your obedient servant,

WM. BLOXAM.

26, George Street, Hanover Square, June 9, 1836.

Mrs. B——, a widow, the mother of several children, aged 54, ceased to menstruate six years since, and shortly after that period discovered a tumor in the right iliac region, which gradually enlarged until, at the period when she first consulted me (the middle of the year 1835), it occupied nearly the whole abdomen, but was somewhat more prominent on the right than on the left side. It was tense and obscurely fluctuating. Her general appearance was that of tolerable health, and the complaints she made might principally be attributed to the distension caused by the presence of this tumor. She was neither emaciated nor corpulent. The opinion I formed of this case was, that it was a dropsy of the right ovary. She had been under the care of several medical gentlemen during the last few years, without receiving benefit.

* India Journal of Medical Science.

After having administered iodine, both alone and in combination with mercury, for some time, without any good effect, I proposed to her a consultation, with a view to determine on the propriety of evacuating the fluid by puncture. She requested a few days for consideration, and shortly afterwards (January 20, 1836) I was summoned to her in great haste. On the evening previous, whilst walking up Wimpole Street, she fell with great violence on the abdomen, over a mat which had been placed on the pavement outside a shop-door. She had experienced considerable pain during the night, and I found her suffering under great tenderness of the abdomen, aggravated by pressure; vomiting, thick thready pulse, and her countenance betokening great anxiety. Fluctuation was now distinctly perceptible. She was bled, fomented, an opiate administered, followed by a dose of calomel and saline cathartics, by which her symptoms were much relieved, the most urgent being the irritability of the stomach: this continued, more or less, for several days, during which time she took at intervals doses of prussic acid, with great advantage, and on the 30th commenced a bitter mixture, combined with sulphuric acid.

About the middle of February, I was surprised at the diminution of her bulk, which continued to decrease with such rapidity, that by the middle of March she was no larger than natural; nor at this time is there any perceptible increase in her size.

She stated to me yesterday that she is in the enjoyment of tolerable health.

The most remarkable fact, however, is, that during the subsidence of the abdomen, she had no apparent increase of the excretions, either by the bowels, kidneys, or skin.

DELICATE TEST OF IODIDE OF POTASSIUM.

To the Editor of the Medical Gazette.

Sir,

Perhaps it may be interesting to some of your readers, to know that a convenient and extremely delicate test of the hydriodate of potash exists in the solution of the proto-nitrate of mercury.

The hydriodate may be detected by this test, in so small a proportion as the 28,800th part; the yellow precipitate being the proto-ioduret of mercury.

A very considerable number of the patients at St. Thomas's Hospital are now under the influence of the hydriodate, and in all the cases which I have examined, the test has indicated the presence of the salt of iodine in the urine.

This morning, a patient, in the country, took a single grain of the hydriodate, and in three-quarters of an hour, the urine being tested, a yellow precipitate was the result.

I have the honour of subscribing myself, sir,

Yours very respectfully,

Geo. Kemp, M.B. Cantab.

Cheshunt, June 13, 1836.

KERATONYXIS FOR CATARACT;

AS SAID TO BE PERFORMED BY PROF. WALTHER, OF MUNICH.

To the Editor of the Medical Gazette.

Sir,

The following statements occur in Mr. Lee's account of the "Hospital of Munich," published in your journal for April 23d. "Operations (on the eye) of importance, except the cataract, are not of very frequent occurrence. Professor Walther *usually operates* by couching, and *always prefers* the keratonyxis, making the opening through the *centre* of the cornea, to the puncture of the sclerotic. Both the eyes of an old man were operated on in this manner a few days ago, and *no unpleasant symptoms succeeded.*" The opinions of Walther are entitled to so much respect, whilst the practice attributed to him by Mr. Lee is so extraordinary and defective, that I am induced to request your talented correspondent to furnish your readers with more precise information upon the points referred to in the preceding quotation. Mr. Lee's statement is, in fact, so ingeniously indefinite, whilst the two latter sentences I have quoted are in every respect so loosely constructed, that I am satisfied he will have no objection to supply an explanation, without which a certain part, at least, of his interesting communication will be useless, even if it do not mislead.

As the paragraph now stands, the

learned Professor is (erroneously) represented to puncture and render opaque that portion of the cornea which is situated in front of the most important (central) part of the pupil; and, if such be his method, and, if the influence of his recommendation induce any of his humble contemporaries to follow his advice, "the sway of great men o'er little" is, indeed, considerable, and in this instance much to be regretted.

I am, sir,
Your obedient servant,
RICHARD MIDDLEMORE,
Surgeon to the Birmingham Eye Infirmary.

June 12, 1836.

[Mr. Lee, we believe, is still on the Continent: so that Mr. Middlemore's inquiries cannot perhaps be speedily answered.—ED. GAZ.]

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

An Enquiry into the Pathology, Causes, and Treatment of Puerperal Fever: being an Essay for which the Fothergillian Gold Medal was conferred on the Author, by the Medical Society of London, in March 1835. By G. MOORE, F.R.C.S. & F.R.M C.S.

THE chief value of this work consists in the sketch it gives of the opinions of various authors who have treated of puerperal fever: not that much discrimination is displayed, for we have authorities of every possible grade, from Hippocrates to Dr. Ryan. As a compilation, the work is not without merit; but we must acknowledge, that in a prize essay (for be it known that the one before us obtained the "Fothergillian medal") we would rather see some originality even at the sacrifice of a little of the industry.

We have the definitions and pathognomonic symptoms of the disease in due order; the varieties and diagnosis; the appearances on dissection, followed by a furtive and very unsatisfactory "glance" at the theories of fever and inflammation. Under the head of causes, the influences of contagion and atmospheric peculiarities are discussed; after which we pass on to the effect of gestation and parturition: while the prognosis and the various means of cure bring up the rear. Upon the whole the student will find it rather a useful summary.

A Treatise on the Functional and Structural Changes of the Liver, in the Progress of Disease; and on the Agency of Hepatic Derangement in producing other Disorders; with numerous Cases, exhibiting the Invasion, Symptoms, Progress, and Treatment of Hepatic Disease in India. By W. E. E. CONWELL, M.R.I.A., Surgeon of the Madras Establishment, Docteur en Médecine de la Faculté à Paris, &c.

THE original education of the young men who go to India in the medical department is not generally of a high standard, and separated as most of them afterwards are from the rest of the world, little opportunity or inducement is presented for keeping pace with the progress of science. Not a few of those who return to England, at the end of twenty or thirty years' service, seem to suppose that the art has remained stationary during the interval.

To this observation there are exceptions; and those exceptions are yearly becoming more numerous: a change which, we think, is in great measure to be attributed to the zeal and talent of some gentlemen in the Indian service, who, by the institution of a Medical Society—by the publication of "Transactions," and other means—have contributed to rouse the energies of their brethren, and turn their attention to scientific investigations. We regret that the work before us does not show evidence of this improved knowledge; indeed, nothing can well be imagined more flimsy or superficial, yet possessing all the self-complacent air of superior attainment. Professing to give the anatomy of the liver and composition of the bile, we have nothing of recent discoveries of the minute structure of the gland; nor any accurate account of the chemical constituents of this secretion; but a variety of speculative and inaccurate assertions, concerning which it never seems to have occurred to the writer's mind that they rest on no kind of proof whatever. Again: the work contains 531 pages; of which, not fewer than 274 are occupied by "abridged cases," which defy perusal, and which

we venture to say never have, and never will, be read by any one except the author and his printer.

The only portion of the volume which we shall extract, is an enumeration of the symptoms accompanying acute disease of the liver, dependent upon nervous agency; and which has the appearance of fidelity. Certainly no one can doubt its minuteness.

"1. Severe, deep-seated, dull pain in the posterior part, or in the centre of the head.

2. Pain and stiffness of the back of the neck and base of the head.

3. An arid state of the fauces and difficulty of correct enunciation; red tongue, loss of fur, total disappearance of the lingual papillæ.

4. Pain of the back of the neck, and of the posterior superior part of the shoulder, from the spine along the margin of the trapezius to the shoulder joint.

5. Strong and painful beating of the carotids.

6. Stiffness, soreness, sense of weight or oppression in the lower part of the neck; increased action, pain, soreness, or oppression of the heart.

7. Pain at the præcordia.

8. Embarrassment of breathing, and oppression about the epigastrium, lower part of the thorax, or hepatic region.

9. Pain in the region of the stomach, loss of appetite, nausea, and various dyspeptic symptoms; thirst, febrile excitement, especially after eating; vomiting, white-furred tongue, prostration of strength.

10. Pain in one side of the face, sometimes apparently connected with the alveolar processes, and sometimes with the ear.

11. Pain in the right side just at the gall-bladder, or in any part of a line parallel with it, but generally on the right side.

12. Pain, numbness, heaviness, or stiffness of either arm, or both.

13. Crick, or pain of the neck.

14. Stiffness and pain of the loins.

15. In the early stage, irritation, local pain, and sense of weight in the loins, with diminished excretion from the kidneys; the urine being dark like wine lees, or the colour of brandy.

16. Pain at the top of the shoulder, or extremity of the clavicle.

17. Pain, numbness, heaviness, or stiffness of the shoulder.

18 A shooting pain in the breast.

19. A constant dry cough.

20. Dyspnœa with sense of oppression and tightness, with or without pain.

21. A dragging or a gnawing pain about the region of the liver.

22. A stitch, catch, or lancinating pain, on breathing, about the lower part of the chest.

23. Pain in the region of the liver, on turning in bed, moving suddenly or quickly, or on the body being shaken by making a slip or a false step; frequently with tenderness on pressure.

24. Disturbed sleep.

25. Greatly increased action of the abdominal aorta, and frequent palpitation of the heart.

26. A sense of fulness in the chest, and inability to make a full inspiration.

27. A sense of tension, or heat, at the epigastrium.

28. Pain extending in the course of the colon from the cæcum to the sigmoid flexure.

29. Pain of the right kidney, more rarely of the left.

30. The patient lies with more ease on the left side; but this varies according to the extent and part affected, and to the new relations or adhesions that part may have formed.

31. Pain of the back, simulating rheumatism, from its greater severity at some than at other times.

32. A sense of strangulation at the larynx.

33. Pain in the eye-ball.

34. Pain in the forehead over the eyes.

35. Pains about the pelvis and superior portion of one or both thighs.

36. Pain of the right or left knee."

Leçons d'Anatomie Comparée de GEORGES CUVIER, *recueillies et publiées par* M. DUMERIL. 3ieme Edition. 1836. Dulau.

THIS is the first *livraison* of the reprint of a work which every anatomist knows how to prize. The invaluable lectures of Cuvier, on comparative anatomy, were long a desideratum, the first edition having been exhausted many years since, and no re-publication having taken place during the author's lifetime. The Paris publishers lately began an edition, with additions and notes, which, when complete, will occupy eight octavo volumes. But their labours are likely to be eclipsed by the

Brussels edition, the commencement of which is before us, handsomely reprinted from the Paris copy, and to be finished at an economical rate of expense, in three goodly octavos. Great care seems to have been bestowed on this edition, so as to bring it out correctly, and to ensure the approbation of the patrons of the Brussels press.

Outlines of Comparative Anatomy. By R. E. GRANT, M.D. &c. Part III. Baillière.

DR. GRANT has given, in this Part, the completion of his views of the nervous system. The organs of the senses are also described, and the digestive organs commenced. The publisher has honestly performed his part, in supplying no less than twenty-three wood engravings; several of which are executed in the best style of workmanship, particularly those with black grounds.

MEDICAL GAZETTE.

Saturday, June 18, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

MEDICAL PERIODICAL LITERATURE IN INDIA.

IN one or two of our late numbers we gave some extracts from a journal recently established at Calcutta — established, indeed, for some time, ere we were aware of its existence. A contemporary coming thus to pay us a first visit, after traversing a quarter of the globe, is surely entitled to no ordinary greeting: we accordingly, not only hail his arrival, but beg to introduce him to the acquaintance of our readers, as "The India Journal of Medical Science;" a periodical now in its third year. We know not how it is that our distant friend never thought of favouring us sooner with some taste of his quality, or token of his warfare in medical literature, but has chosen rather to come upon us all at once, with his accumulated labours of two years. A good appearance is generally supposed to be the best letter of recommendation; perhaps it was with some such feeling that our Indian contemporary hesitated to show himself, till, by an imposing presence, he could almost calculate on what we are sure he might, if he pleased, have met with much earlier—a hearty welcome.

There was clearly a want of such a journal in India. For general science, at the time the work just named was started, there was, we believe, ample provision, in a periodical which then flourished, as it still continues to do, forming a valuable repository for facts connected with the natural history, zoology, and botany, of our vast possessions in the East. But medicine required both a special vehicle and one that could be readily and frequently employed for the prompt acquirement and communication of useful knowledge: and this was what the originators of the journal before us evidently well understood; though they saw, at the same time, all the hazard of such an undertaking, and took care previously to ascertain their resources. The grounds on which they ventured to anticipate success may be stated in their own words:—"The success of two experiments for the promotion of science in the East," say they, in their opening number, "encourages us to augur a similarly auspicious result for that which we have now ventured upon—viz. the formation of the *Medical and Physical Society* of Calcutta, and the institution of the *Gleanings in Science*, since merged into the *Journal of the Asiatic Society*. Of the latter it may be fairly said, that it is too exclusively devoted to general science and oriental literature, to be available for topics of such a peculiar nature as legitimately fall within the province of a periodical like ours. As

respects the *Transactions* of the Medical and Physical Society, on the other hand, their plan precludes the possibility of recording, with advantage, many brief, fugitive, yet comparatively important questions, that arise during the long annual or biennial interval between the publication of each volume. A person contemplating the notice of such questions as they arise, is naturally deterred by the consideration of the remote period to which its appearance before the public must be postponed; a period when, most likely, the topics or phenomena have lost much of their interest, or cease to excite profitable discussion." With the view, then, of supplying this desideratum, and also of remedying another want, which the great body of medical men, educated in Europe and practising in India, laboured under, namely, the economical procural of at least the substance of the European medical journals — the editors courageously entered upon their new speculation, published their periodical *monthly*, filled with good original papers and judicious selections, and, in short, succeeded—we have reason to presume—to the full extent of their hopes and wishes.

One proof of their success, in addition to the internal evidence afforded by the healthy aspect and increasing excellence of the journal itself, we have in the circumstance that from being a monthly periodical, it is henceforth intended to bring it out *twice a month*, in consequence of the mass of contributions which, we understand, are now regularly put at the editor's disposal. We only hope that, in process of time, the work may so abound in medico-literary wealth, as that it may flourish, like our own, *weekly*.

This is a manifest sign of the times. There is nothing, perhaps, by which the diffusive character of the literature of the age, general as well as professional, is so strikingly exemplified as by the increasing popularity of the *periodical* press, and the tendency to abridge as much as possible the intervals of publication. What used to be patiently waited for quarterly, is now demanded weekly, and a medical author is ill content with the courtesy of the editor to whom he commits his scarce dried manuscript, unless he sees that printed in a fortnight which the writers of the generation just gone by would not have grumbled to find postponed for a whole half year. The time may come when we shall ourselves have to come forth at shorter intervals than at present: instead of a weekly avatar, we may, like a French contemporary even now, be induced to satisfy the eager longings of the medical public every other day. But be these things still confined within the womb of fate, nor let us anticipate even in thought our possible future labours. We were speaking of our new acquaintance of India — his origin — his success — his prospects: we must part with him for the present, once more taking leave to express our respect for his talents, and our warmest wishes for his continued prosperity.

EASTERN ASSOCIATION.

Some account of the proceedings of the Eastern Provincial Association at their first annual meeting held at Ipswich last week, will be found in a subsequent page. We confess we are of those who cannot clearly discern the objects or advantages of the institution of this Society, unless it be intended to act simply as a committee for furthering the purposes of the parent Association; we apprehend, however, that the parties who organized it had something more distinct and independent in view. They thought, we rather suspect, that the influence of the practitioners of the Western counties was over-great in the original society, and accordingly have

attempted to set up a rival body, composed chiefly of members belonging to the East. If this be the fact, we can no more augur well of the prosperity, than approve of the policy, of such an undertaking. As it is, we see that the numbers enrolled in the Eastern Association do not amount to much more than a tenth part of those belonging to the *Western*—if we may so denominate what should be *par excellence*—*the* Provincial Medical Association: nor have we been able to learn that there was more than one professional paper read at the late meeting: is it intended that Transactions likewise should be published?

But, as we have said, we profess not to be acquainted with the specific object of this junior or branch society, as we must call it. Should we prove to be mistaken in the surmises we have ventured to express, we shall be happy to stand corrected.

It is mentioned, by the way, in our account of the meeting (p. 457), that a report was read on the Medical Management of the Poor. We were anxious to know more about that report, and are luckily enabled, through some intelligence which has just now reached us, to supply what we should otherwise have considered a defect,—a short sketch of the substance of the document read by Mr. Macintyre.

It set out with condemning the means which have been employed to depreciate the services and lower the dignity of the medical profession in public estimation. It complained that the Poor-Law Commissioners had resorted to unfair and disingenuous statements respecting medical contracts, in illustration of which it quoted a statement in the first report of the Commissioners,—[a statement already noticed in this journal],—and in reference to which it was said, 'Your committee are not prepared to deny, that instances may be adduced of medical men losing sight of their professional character under such circumstances, but they are ready to contend that the assertion, that such rapacity is chargeable, in a 'majority of instances,' is equally unwarranted and unworthy. Your committee trust that the present opportunity of directly contradicting this ungenerous and unfounded allegation will not be permitted to pass, but that in unequivocal terms this meeting will mark its sense of the injustice of the assumption, and its reprobation of the employment of a statement so much at variance with fact, to deteriorate the condition of the respectable practitioner. Your committee the more strongly recommend this course, because it appears to them, that upon the discreditable instances, unwarrantably magnified into a 'majority,' the Commissioners mainly relied for effecting the measures so directly calculated to injure and subvert the profession.'

The report of the committee then proceeded at considerable length to deprecate what are called 'Medical Clubs'—a system of contract, which it concluded by describing as having of late arisen to a considerable extent, under the fostering care of the Poor-Law Commissioners, — "a system which, whatever may have been the misery-inflicting tendency of the old method of farming parishes, on the unfortunate pauper, and its degrading effects upon the medical attendant, bids fair to outstrip its predecessor, not only in its utter inadequacy to supply efficient medical aid to the poor, but also in its injurious effects upon the long-established and universally recognised rights of the medical profession."

The reading of the report appears to have led to some discussion, principally on the subject of "medical clubs," in reference to which we may have a few remarks to offer, probably in our next number.

PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.

We believe it is scarcely necessary for us to announce the following facts relative to the approaching meeting, as a circular containing ample particulars has been, or is presently to be, extensively circulated among the members of the profession throughout the country.

These, however, are the chief points mentioned in the paper before us:—

The Fourth Anniversary Meeting of the Provincial Medical and Surgical Association will be held at Manchester, at the rooms of the Royal Institution, in Mosley Street, on Wednesday, the 20th, and Thursday, the 21st of July next.

The President, Edward Holme, M.D., will deliver his Address at 7 o'clock on Wednesday evening; after which the Report of the Council will be read; and, on Thursday morning, at 12 o'clock, the Retrospective Address will be delivered by John Green Crosse, Esq., F.R.S.

Each member, on arriving in Manchester, is requested to proceed to the Royal Institution, where persons will be placed to give every information as to the progress of business.

On Thursday, at half-past 5 o'clock, the members will dine together; and, at 9 o'clock the same evening a *conversazione* will be held.

In the mornings of Wednesday and Thursday, previously to the meetings, the rooms of the Natural History Society, the Royal Infirmary and Fever Wards, and some of the manufactories, will be open to the inspection of the members.

EASTERN PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.

THE first annual meeting of this Society was held on the 6th instant, in the Council Chamber, at Ipswich, and was attended by upwards of sixty members of the faculty, among whom were noticed Sir L. Maclean, Dr. Chevallier, Dr. Nunn, Dr. Baird, Dr. Beck, Dr. Cox, Dr. Stevens, Dr. Wharton, Messrs. Crosse, Crowfoot, Jefferson, Bullen, Hammond, Francis, Sampson, Chapman, Mumford, Bedingfield, Bree, Smith, Creed, Macintyre, Growse, Moore, Muriel, Denham, Mines, Waylen, Beales, Armstrong, and Tomkins.

Upon the motion of Sir LACHLAN MACLEAN, seconded by Dr. NUNN, of Colchester, Dr. Baird was called on to preside.

Dr. BAIRD, on taking the chair, returned thanks for the honour done him. The formation of this Association, he proceeded to say, as a section of the larger Provincial Association, and the ready support which it had so immediately met with, were circumstances which had been loudly cheered by their brethren in other parts of the kingdom, as offering further proof, were such wanting, of the activity, energy, and zeal for the promotion of their science, which characterised the members of the medical profession; and it was most gratifying to find that so fully and so generally had the plan of co-operation for the advancement of medical science in the provinces been recognized, that the *parent Society, now numbered near 800 members, including a large proportion of the most distinguished physicians and surgeons resident in the provinces.* Now, as no one could have fully studied his profession, without perceiving how susceptible it was of improvement, without discerning how inadequate the efforts of any individual must be towards the accomplishment of this purpose, so might he fairly expect incalculable advantages would result from the united labours of this numerous and effective body towards alleviating the sorrows and diminishing the sufferings of mankind. "In the revolutions of medical science," said a very high authority, "there has been for some years a progressive and remarkable change of opinion, in regard to the mode of conducting medical investigations. There appears to have been a tacit but very general admission of the fallacy of medical hypothesis, and the precarious nature of general principles in medicine, and there seems to be an increasing conviction of the indispensable necessity of founding all our observations in medical science upon an extensive and accurate acquaintance with the pathology of disease. The facts which are required for this purpose can be derived only from the contributions of practical men, and it is of the utmost importance that such persons should extensively record their observations, as they must form the only basis on which can be founded any legitimate principles in medical science." With the knowledge, then, that for the essential part of their science they were entirely dependent upon well-conducted experiments, and close and faithful observation, and that it was in the power of every person who pursued his profession with diligence and zeal to add something to the common stock of medical knowledge, he trusted the sentiment of each member of this Association would be "*Quantacunque fuerint aliorum conamina, semper existimavi mihi vitalis auræ usum frustra datum fore, nisi et ipse, in hoc studio versatus, symbolum aliquod, utcunque exiguum, in commune medicinæ ærarium contribuerem.*"—But another most important object which the founders of this Society had in view, was the effecting of that union and harmony which ought ever to prevail

between men of similar sentiments and similar pursuits, who were engaged in the exercise of a most liberal profession. And were they not entitled sanguinely to hope that this moral influence would be attained by a more general intercourse among medical men in the provinces, and by their being brought into friendly contact and brotherly Associations, as nothing could be better calculated to prevent those differences and reconcile those jealousies, which too often disturbed the peace of the profession, than the amicable communion afforded by the meetings of this Society. Dr. Baird concluded by adverting to the loss they had sustained in the death of one of their members, the late Mr. Helsham, of Woodbridge, whose premature and sudden death had occasioned much affliction to his family and friends.

Mr. Crosse, of Norwich, then read the first annual report, as follows:—

"In preparing a brief report for the first annual meeting, the council of this society have experienced a very grateful task. The unparalleled number of signatures to the original requisition, and the numerous attendance of gentlemen of the profession at Bury St. Edmund's in September of last year, indicated that an ardent spirit was abroad for the formation of an extensive medical association in the eastern counties: these circumstances created anticipations which have been most amply realised, and the result affords the strongest motive to the many active promoters of the measure to continue their exertions with zeal and energy for its maintenance and further extension.

"The number of subscriptions paid to the society's account is 161—and the names of several gentlemen are enrolled from whom no remittance has yet been received, owing to the difficulty of collecting so small an amount—so that on the present day, when we are not far advanced in the first year of the society's establishment, the total of its members is not less than 170, and amongst them will be found many of the most venerable members of the profession, many of whom have long been distinguished for their literary as well as medical writings, or for their extensive experience and reputation in practice.

"In the history of every enlightened class of society it has been found that assembling its members together in large numbers has given a fresh stimulus towards its improvement, and the medical profession is so rich in resources as to profit by such intercourse above most others. Already the fruits of our assembling have ripened and been gathered; several papers were read at the first meeting of the council, which are reserved for publication—and others are now ready, some of which will be laid before the present meeting.

"In order to secure further services, particularly of gentlemen who, from excessive occupation or habits of seclusion, might not otherwise lend their aid, the council recommend that it should be considered an essential part of the proceedings of each general meeting, to appoint several members to give jointly a report upon some subject referring to the climate, peculiar diseases, statistics, or natural history of the district.

"In adverting to the code of laws and regulations drawn up by the special committee, the council congratulate the society on so few being required. The same ground of congratulation exists as to the freedom of admitting members into the society.

"It is conceived that no topic is of greater importance to be noticed on this occasion, than the terms recommended by the committee, and the prospect which the council hopes is held out, 'of effecting a junction with the Parent Provincial Association, for the publication of transactions, and holding a joint meeting once in a few years,'—an arrangement so evidently calculated to produce mutual benefit, combining more of the advantages of union than if the societies were one, and still retaining to each the chief privileges of a separate existence.

"In conclusion, the council beg to announce that some gentlemen have undertaken to draw up a report on 'the Medical Management of the Poor,' which will be read towards the close of the proceedings, opening a field for discussing a subject generally felt and acknowledged to be of vital importance to the respectability and interests of a great portion of the practitioners in the provinces."

Dr. Beck then read the new code of laws for the government of the Association; after which several resolutions were proposed and adopted.

Mr. Jeafferson, of Framlingham, read an essay on a difficult surgical operation connected with ovarian disease, for which he received the thanks of the society.

Mr. M'Intyre afterwards read a "report on the Medical Management of the Poor," drawn up in pursuance of a resolution of the council in March last.

A vote of thanks was then given to the gentlemen by whom the report was drawn up; as well as to Mr. Crosse, for his laborious exertions as Secretary to the Society, with the expression of a hope that he would continue his services. The meeting soon after separated.

In the evening, a party of about fifty—Dr. Baird in the chair—dined together, at the Great White Horse.

NORFOLK AND NORWICH HOSPITAL*.

CASES OF FRACTURE OF THE SKULL,

REPORTED BY

J. G. JOHNSON, ESQ.

Assistant-Surgeon to the Hospital.

Fracture of the Skull from the bursting of a Gun—Compression from Removal of the Breech-pin impacted in the Frontal Bone.

JAMES BECKET, aged 16, admitted in the afternoon of January the 12th. He came from a distance of four or five miles in a cart, and got out and walked into the hospital without assistance. On examination, the breech-pin of a gun, which had burst in firing, was found to have penetrated the frontal bone, just in the situation of the superior longitudinal sinus. He gave an account of his accident, answered questions well, and was not at all confused. The surgeon who had charge of him proceeded to remove the breech-pin, which was firmly impacted, and afterwards took away three or four portions of bone, one of which contained part of the ridge to which the superior longitudinal sinus is attached. The aperture in the cranium was now nearly an inch in diameter. The dura mater was wounded, and a portion of cerebrum escaped on the removal of the foreign body. The wound was lightly dressed. *Very soon* afterwards he became restless and uneasy, complained of pain, and was much confused. Pulse 50, and intermitting; his pupils rather dilated. Half an hour after the operation he became comatose, and his breathing stertorous; and he had slight convulsive twitchings of his *left arm.*

10 o'clock, P.M.—Pulse rapid and small; pupils of natural size; passes his urine involuntarily; breathes heavily; the dressings were thrust up by a protrusion at the wound.

13th, morning.—Had been insensible all night; his left arm moving convulsively; the right side of his body paralytic; pulse 150; pupils of natural size, but inactive; respiration hurried; unable to swallow.

Evening.—The left side is now become paralytic; tumor of brain more prominent.

14th.—Died at 10 this morning, without convulsions.

Examinatio cadaveris, Jan. 14th.—The tumor protruding through the aperture in the cranium, seemed to be composed of dense layers of coagulated blood and cerebral substance, of a dark colour, sloughing and disorganizing; and the brain in immediate contiguity with the hernia, presented a somewhat similar appearance. The tumor arose from the right anterior lobe of the cerebrum, near the superior longitudinal sinus, which had been wounded on the side next the hernia, and a large quantity of coagulated blood was found both above and beneath the dura mater in this situation. The brain, in general, was pale and bloodless.

The surgeon who had charge of this patient has favoured me with the following remarks upon the case:—

"This boy walked to his ward on arriving at the hospital, was quite sensible, and continued so, without any symptoms of compression, *until after the breech-pin was removed*, when he became, in a short time, comatose, with stertorous breathing and dilated pupils, and died in less than forty-eight hours. Death, in this case, ensued from pressure being removed: the brain being left not only *uncompressed*, but unsupported, at the seat of injury, so that some of it escaped through the wound, and a hernia cerebri was quickly formed from the impetus of the circulation. Thus death was expedited by the injured brain protruding, so as to interrupt more completely its functions. Had I allowed the breech-pin to remain, life would, I believe, have been prolonged, and have terminated, in the course of some days, from inflammation of the membranes of the brain. How are we to reconcile this case with the present doctrines of our greatest authorities, in regard to compression of the brain? The symptoms which quickly shewed themselves on the removal of pressure, in the above case, were precisely those enumerated as the *symptoms of compression.* We can only say, that such a train of *symptoms* are the effect of interruption to the cerebral functions, and that compression is *one*, but *not the only cause* capable of producing these symptoms."

I confess that *I* am inclined to consider the symptoms in this case as resulting from the effusion of blood, which took place from the wound in the superior longitudinal sinus—this wound having been caused by the breech pin, and effectually plugged up by it: thus accounting for the symptoms of compression of the brain which so quickly followed its removal.

Fracture of the Base of the Cranium, and Effusion of Blood, producing Compression of the Brain.

Martha Ward, aged 68, of diminutive stature, and slender form, was admitted at 10 o'clock at night, on the 18th of September. She had fallen down three or four stairs at 12 o'clock at noon; was not

* Transactions of the Provincial Medical and Surgical Association, vol. iv. just published.

aware how long she had remained prostrate, but had got up without assistance; she was quite sensible, and had described her fall to a medical student who visited her soon after, and who thought her case trivial. At 3 o'clock she became comatose, and her breathing was stertorous; and she remained in this state until 6 o'clock, when a surgeon saw her, and bled her to twenty ounces. On admission she was insensible, and her breathing stertorous; her pulse small and frequent; her skin pallid and cold; there was loss of power in the left eye-lid, the pupil of that eye being contracted and fixed, whilst that of the right eye was dilated and sluggish. She was continually carrying her right hand to her face, but scarcely moved her left arm; she moved both her legs when tickled on the soles of the feet, but the left less actively than the right; her urine and fæces passed involuntarily; there was a very small wound behind the right ear, which, however, did not communicate with the bone; no fracture was felt. She became gradually worse, and died at 7 o'clock in the morning of the 20th.

Examinatio cadaveris, Sept. 20th, at half-past 11.—There was a fracture of the right parietal bone near the posterior inferior angle, a portion of bone, an inch long by half an inch wide, being insulated and loose, but not depressed. A fissure extended from this spot *upwards*, along the lambdoidal suture for an inch and a half; and to the same extent across the parietal bone and *downwards*, dividing the petrous portion of the temporal bone and the mastoid process, and proceeding through the tympanum and eustachian tube, to the fissura lacera, at the base. On removing the calvarium, a large coagulum, weighing three ounces, was found between the dura mater and cranium; it was one inch and a half thick, and produced a corresponding indentation of the brain. The blood proceeded from a branch of the arteria meningea media, about two inches from the external wound; the brain and plexus choroides were pale; there was about half an ounce of fluid in the ventricles.

The first symptoms appear to have been those of concussion, from which she quickly recovered; the succeeding symptoms arose from compression of the brain by a large coagulum.

Fracture of the Skull, and Depression, without Symptoms—Operation.

James Pye, aged 11, admitted December the 15th. There was a wound, almost parallel with the sagittal suture, over the left parietal bone, which was bare, and a triangular portion of it depressed, the depression being about twice the thickness of the cranium, and gradually diminishing. He was quite sensible, and answered questions readily and correctly; pupils active; pulse regular. The wound was enlarged, and a portion of the parietal bone, overlapping the edge of the depressed bone, was removed by Hey's saw. The depressed bone was then removed, the outer table being broken into three pieces, whilst the inner table remained whole. About six ounces of blood were lost during the operation.

16th.—Slept comfortably; is rather feverish.

Calomelanos, gr. iv.

18th.—Bowels open; tongue very white; pulse quick; answers incoherently. He gradually recovered from this time.

Fracture of Skull with Depression, and Recovery without Operation.

Charles Harvey, aged 12, admitted July the 4th. He had been struck by a chimney-pot falling on his head from a roof; there was a wound two inches long, and a portion of bone, an inch and a half in length, was depressed almost the thickness of the cranium. He was sensible, and answered questions well; pupils active; pulse very feeble and quick. The head to be raised, and cold lotion applied; calomel and jalap as a purge. He soon recovered, and was discharged on the 19th.

MIDWIFERY EXTRAORDINARY

AMONG THE BURMESE.

The following account of the popular midwifery of the Burmese we extract from the India Journal of Medical Science. The Editor vouches for its authenticity, and adds, that the writer's "accuracy, in regard to the circumstances he has brought forward, is not to be questioned."

To the Editor, &c.

Sir,—I am induced to communicate to you a few details of the Burmese practice of midwifery, in order that you may draw up and send me a set of plain rules and directions, such as the superior knowledge of anatomy and medicine professed by our physicians would point out, and I will have your rules translated into the Burmese language and circulated here. I know not a more benevolent act which I could perform.

About the seventh month of pregnancy a Burmese woman is advised to tie her *Thamien*, or petticoat, more tightly and lower round the body, just above the *fœtus*,

in order to force and keep it down as low as possible, and prevent its ascending; which, if it did, would afterwards, it is supposed, render delivery more tedious and difficult.

When the labour pains come on, the woman is attended by one or two *Woon-swè* (midwives), and by three, four, five, or even six of her female relatives or friends, who shut all the doors and windows of the room, so as to render it as close and hot as possible. She is in a state of perfect nudity, and being urged to take violent exercise, runs round the room as long as she is able to do so, without or with the assistance of her friends, sometimes stopping and pressing her loins against the posts of the house, sometimes raising a heavy weight with both hands, and forcibly bringing it down, as if pounding paddy, and sometimes falling down and rolling on the floor. All this time, also, she is uttering such loud and piercing cries and exclamations, as may be heard in the street and several doors off, vowing separation from her husband, and wishing for death; which wish the Burmese consider as a proof of bad education and ignorance in any one expressing it. But the poor creature is quite distracted, and void of all sense of propriety, and sometimes grossly abuses her husband all the time. He is not admitted near her, and generally sits in the next room or in the street, laughing on hearing himself abused; or if he possesses more feeling, he opens and lifts up the lid of every box in his house as a preventive against any charm that may have been used by any evil disposed person, and prepares also, in a manner which I shall hereafter describe, some *charmed* or *holy* water, which he sends in to his spouse to drink.

The woman's body is smeared with oil; and her attendants, with many speeches of encouragement and comfort, such as, that she will not die, that all women bear children in the same way, &c., press down the child *violently* with their hands, urge the woman to strain, and sometimes put up a foot against her loins and press against her, holding her arms back.

At last the woman is quite exhausted, and falls on the floor. Some of the women still keep pressing the child down with their hands, trying to expel it forcibly; and there are instances, I am credibly informed, in which the woman is placed on her back, and the midwife sits upon her, or stands up and presses against the child with one of her feet! Some of the other attendants, in the meantime, sit round the woman, and watch and notice, in so loud a voice as to be often heard in the street or adjoining houses, the appearance of the different parts of the child.

When the child is born, it is still kept near the mother until the after-birth comes away, to produce which the attendants again press the abdomen of the woman, pull the navel cord, and sometimes beat her loins with a hard pillow, and force a portion of her long hair down her throat, in order to create an inclination to vomit.

As soon as the after-birth appears, the naval string is cut, and the child taken charge of by one of the attendants, whilst the others, generally four of them, one to each arm and leg of the woman, take her up, bathe her in warm water, and place her as close to a large fire as possible, smearing her body with turmeric mixed with a little chunam, and making her swallow $2\frac{1}{2}$ ticals weight of salt, 2 of pounded turmeric, and a little chunam. A hot brick and salt enveloped in a cloth are also pressed against different parts of the woman's body in succession, and often a handful of warm salt is applied and *even introduced.*

This operation of exposure to fire, or rather roasting, as the Burmese women themselves call it (*mi'-ken*), is one to which the woman is subjected for seven days, during which time, and often for a longer period, she is obliged to take the dose of salt and turmeric, and chunan, in the proportions before mentioned, three times a day, at sunrise, noon, and sunset, in order, it is said, to keep the inside of the body as hot as the outside; and to drink warm water when thirsty, which of course she always is, and once or twice a day also, she is made to use a kind of vapour-bath, by sitting near the fire with a bamboo frame-work over her, covered with cloths steeped in hot water, or by sitting over a fire covered up, and sprinkling water upon the fire from time to time. She is often made also to sit on a heated brick covered with cloth. During the rest of the day and night, she lies on a plank or bamboo stage raised five or six inches from the floor, and only a cubit wide, and placed as close to the fire as possible: she can only just turn her back or stomach to the heat, as she finds it too great on either side. The heat to which the woman is subjected would be intolerable, but that she is every now and then smeared over with pounded tumeric and water. She is kept in a state of profuse perspiration, from which she is gradually relieved on the seventh day. A lady of rank during these seven days, is known to have burnt as many as 1100 large billets of firewood, but the usual allowance is 200 or 300 billets. The wood of the tamarind tree also is used by those who can afford it, as it is said to make the hottest fire. During the whole of this operation, no bandage is applied any where, and at the close of it, her

skin is quite blackened, and peels off afterwards.

Some of the Burmese say, that a crab half roasted will not keep so well as when it is thoroughly done, and believe, that in the same way a newly-delivered woman cannot expose herself too much to the fire. But from carelessness, or from the difficulty of shutting out draughts of air in a Burmese house, the poor woman often catches cold, and suffers from rheumatic affections of the limbs and other troublesome and lingering disorders; and whenever such cases of illness occur, the Burmese say, that they are owing entirely to the woman's not having been roasted enough! I have, however, heard many Burmese of respectability talk with horror of the customs of their country having subjected their women to such cruel sufferings, and attribute to this practice the cause of many women never having a second child. The principal midwife in this town, an active old Talain woman of 77 years of age, named *Mi-Ngyein*, states that she has followed her profession for more than 50 years, that she has delivered more than 10,000 women, that she is now often called to deliver the great-grand daughter of one whom she had attended in her early life, and that the average mortality, in her opinion, has been about ten per cent. This, however, must be much too high an estimate. Her usual charge is four or five rupees.

The diet of the woman during the first days after delivery, consists of boiled rice, with a kind of very hot broth, made by a mixture of the liquor of *Ngapee*, or fish sauce, a large quantity of pepper, some onions, and the root of a plant called *K'hura*, remarkable for its heating properties. This soup she drinks by itself, as well as taking it with the rice, and it is so hot as to make her eyes run with water; but it sensibly increases perspiration. During the roasting operation also, a quantity of oil and salt is applied to the top of the head, with the hair divided, and it is then held for some time as close to the fire as the woman can bear it. I am assured, however, that during this roasting operation, although the upper part of the body of the woman is always in a state of profuse perspiration, her feet and legs below the knees keep so cold, as to be unpleasant to the touch.

The mother is not supposed to have any milk for her infant until after the third day; and to produce the secretion, her breasts are rubbed and fomented with warm water, and the nipples pulled and scraped with the nails of her attendants. As soon as the child's navel string is separated, a quantity of pounded pepper is taken by one of the attendants in her forefinger, and rubbed all over the inside of the little creature's mouth, in order to make it throw up any phlegm or other matter which may be lodged in the throat or lungs. Sometimes a littled boiled rice is masticated by one of the attendants, and forced down the child's throat; but usually a little honey and water is given to it occasionally, which is its diet for the first three days, unless the child cries much, or the parents can afford it, when some woman who is nursing is called to give the child the breast, until the mother can begin on the fourth day to nurse it herself.

Note.—This *charmed* or *holy* water given to a woman in labour, is prepared by a person, repeating seven times over a cup of water the following Pali words: *Yatau-hanbhaginee ariyaya Zátiya, Zàtau nabhizánami thentseittsa pánau Zeewita waurau-peta, tena thetstsena thotli te hautoo thatti gabat, tha*,—meaning, as I am informed by a Pali scholar, "O, sister, from the moment of my having attained the state of an inspired priest of Boodh, I do not know a motive for depriving any sentient being of life, and as my words are true, mayest thou be at ease, as well as the being in thy womb." The Burmese have several *pareit* or prayers used as a preventive of evil, but the above is called *Engooli Mala pareit*, and was dictated by *Gaudama* under the following circumstances.

A Bramin, named *Aheintha-ka*, of *Thawotti* (*Spavasti* in Oude), applied for instruction in learning to be a celebrated teacher in the city of *Tekkatho*, named *Deitha Pamoukha*. Being a man of bad and cruel character, the teacher was unwilling to instruct him, and proposed to receive him as a pupil, upon condition only that he should present the teacher with 1000 human forefingers, thus setting the Bramin, as Samson of old had been set, a task, the execution of which, it was hoped, would cost him his life. The Bramin, however, proceeded to attack men, women, and children, and killing them, cut off their forefingers and hung them in a string round his neck, whence he was afterwards known always by the name of *Engoolee-Mala*, necklace of fingers. He had collected 999 forefingers, and was in the act of chasing his own mother to kill her, and complete his task, when *Gaudama* interposed between them, and converting the Bramin into a Buddhist disciple, made him a priest, and lodged him in the same monastery with himself, near the city of *Thawotthi*. *Engoolee-Mala*, however, had become the dread of the whole country around, and the cry that he was coming, or sound of his very name, terrified women and children, and made pregnant women miscarry. For

some time after he had been converted by Gaudama, whenever he appeared in the streets of *Thawotthi*, as he did every morning to receive charitable offerings, according to the custom of Buddhist priests, the women and children fled before him, and the men chased him with stones. Having been much bruised one day, he applied to Gaudama for protection, and he delivered to him the foregoing Pali words, desiring him to repeat them whenever he saw any woman, and assuring him that they would save him from all further molestation. The words operated as a charm, and they are now always used as a preventive of evil. They are considered of such wonderful efficacy, that the water with which any spot, on which a person may have been sitting or standing whilst reciting the words, is washed, can charm away evil and danger.

A. F.

ROYAL INSTITUTION.

Friday, June 10, 1836.

Professor Faraday on the probable ultimate Analysis of Chemical Substances.

The Friday evening meetings for the season were closed with an admirable lecture by Dr. Faraday — on what he modestly termed "a thought." He first showed, by some beautiful and striking experiments, the identity of chemical and electrical decompositions, and then argued, that as electricity could carry us, after all, only to a certain length, while there was every reason to believe that those substances which we now call elements are not really such, there must be some power *more elementary* than electricity by which the decomposition of those substances will probably be hereafter effected, though at present we have no knowledge whatever of any such power. We regret we cannot enter more into detail in noticing the arguments and proofs adduced by the learned lecturer; but we must not conclude without paying a just tribute to the unrivalled powers by which the attention of the audience was kept rivetted during the whole of the discourse: we never were more struck with the abundant resources, the tact, and the extraordinary facility of explanation, possessed by Dr. Faraday; for what would have been literally a *mere* thought in other hands, proved in his to be a fertile and most luxuriant theme. The theatre was very full, and we believe it was a general subject of regret with all present, that this was the last of the *conversazioni*.

PRACTICAL REMARKS ON OLD CICATRICES.

When Chopart and Lisfranc published their methods of performing partial amputation of the foot, various objections were taken to their operations. The chief of them referred to the retraction of the stump backwards, in consequence of the loss of equilibrium of the muscles, and from which resulted a great difficulty in walking. This was applied more especially to the proceeding of Chopart. The case which follows is calculated to throw some light:—An invalid, a soldier aged 60, now under the care of M. Larrey, had the extremity of the foot carried off by a shot thirty years ago, the toes and a portion of the metatarsal bones were thus removed. The surgeon dressed the wound simply, which became perfectly cicatrized. The patient at first could use the stump in walking, but after a time this became impossible, and he was obliged to have a wooden leg, supporting himself on the knee, which was extremely inconvenient from the length of the limb projecting behind. Another great evil resulted from the frequent giving way of the cicatrix from slight causes. It was this last circumstance which brought him to the hospital. On examining him attentively, there was observed a stump formed by the foot, about five inches long, and kept in a state of forced extension, or, in other words, which was constantly pulled backwards by the gastrocnemei muscles, so as to be retracted obliquely with respect to the leg. In consequence of these circumstances, the limb could only rest on the posterior edge of the point of the stump,—for although the ankle was not actually ankylosed, yet the joint had become so stiff, and was so much altered in position, that the patient could not be got to rest upon the heel. Besides all this, there was a deep ulcer, of indolent character, in the middle of the cicatrix, presenting a surface of from two to three square inches. This state of matters suggested to M. Larrey the question, whether it would not be better to amputate the leg rather than the foot in certain cases, even although the latter might seem to be indicated. It is, however, quite evident, that the case above related is scarcely in point, as no one would think of regarding the amputation effected by a cannon ball, as standing in the same relation as that performed by the surgeon. Indeed, it is remarked by M. Larrey himself, that no one who has attended to the progress of modern surgery would think of merely dressing such a wound without making a new surface.

Another and analogous case is the following:—An old soldier, also under the care of M. Larrey, had an enormous wound produced by a cannon bullet on the lower part of the thigh, on its outer side. Having been carelessly managed, this led to a complete ankylosis of the knee, at its external angle; a considerable mass, having an irregular surface and about two hands breadth in extent, filled up the breach; but just as might have been expected, this immense cicatrix gave way on very slight occasions. In consequence of an accident of this kind, the patient was brought to the hospital. There was a large indolent suppurating wound, several inches in extent, occupying the centre of the cicatrix. M. Larrey observed, that under such circumstances there were but two proceedings from which to choose:—1. to *dress* the primary wound by means of the scalpel, and approximate the edges with sutures; or, 2. to amputate the limb.

In the same situation is a third patient, the calf of whose leg was carried off almost entirely by a ball, in the campaign in Italy. A cicatrix, a foot in length, was formed over the surface of this enormous wound. Although this limb without the calf admitted of the patient walking without artificial assistance, nevertheless the cicatrix continued to open on every slight occasion, and it was on one of these the patient came to the hospital: the retention of the limb had evidently been an evil rather than a benefit to this patient. There can be no doubt but that an experienced suageon would now amputate at once, and thus save these ulterior disadvantages; and the cases above related are intended to show the propriety of so doing. —*Gazette des Hôpitaux.*

THE LATE MR. EGERTON JENNINGS.

Dr. Conolly has given an admirable biographical sketch of this lamented gentleman, in the new volume of the Transactions of the Provincial Association. Mr. Jennings was cut off at a comparatively early age—when entering on his 33d year. He was born in April, 1804, received his school education at Birmingham, and his professional, under Mr. Woody, of Tamworth. He was a pupil also at St. Bartholomew's Hospital. In 1826 he passed the College of Surgeons and Apothecaries' Hall, and in 1827 settled at Leamington. He was, as we recollect, a contributor to this journal; but his papers in the *Transactions*, on the chemistry of the blood, and the phenomena of the fœtal lungs, are those which chiefly brought him into notice. We can only find room for one passage from Dr. Conolly's memoir:—

"To me, already accustomed to the melancholy task of endeavouring to preserve a few memorials of fellow students and professional friends too early 'hid in death's dateless night,' it is peculiarly sorrowful to call to my recollection, as if they were but the events of yesterday, my journey to Worcester with Mr. Jennings in 1832, and to Bristol in 1833, to attend the meetings of the Association, and the enthusiasm with which he, a much younger man than myself, spoke during those journies of the possible effects of such associations; and so soon to have to speak of *him* as one no more. Those who recollect seeing Mr. Jennings at the meeting in 1834, at Birmingham, cannot but remember that his appearance at that time was that of a man for whom long life could not be expected: he had indeed travelled from home on that occasion in a state of debility, which nothing but his warm attachment to the cause of the Association could have enabled him temporarily to overcome; and he had even prepared a paper, which was read at that meeting, demanding a great degree of attention, and written at a time when he was recovering from a severe attack of fever. During that attack, and through all the subsequent months of his life, he spoke with anticipations of peculiar delight of the meeting which was to be held at Oxford in 1835; but before the day of that meeting, he had become mingled with the dead."

THE LATE DR. NATHAN DRAKE.

This well-known author of several able works (such as *Essays on the Spectator*, *Literary Hours*, *Evenings in Autumn*, &c.) died, on the 7th instant, at Hadleigh, Suffolk, in the 71st year of his age. As a medical practitioner he was much esteemed; but his name was always more before the public in consequence of his literary than of his professional labours. In private life he was highly respected for bis kind and amiable qualities.

COLLEGE OF SURGEONS.

LIST OF GENTLEMEN WHO RECEIVED DIPLOMAS IN MAY.

Geo. R. Carter, London.
T. A. Boyrenson, London.
T. B. Hayton, Owlet Ash, Milnthorp.
Alfred S. Johnson, Middlesex Place, New Road.
Aris H. Nourse, Birmingham.
W. Strang, Bridport.
W. H. Cullen, Camberwell.
M. Moorhouse, Holm Frith.
Robert Hunt, Hull.
Richard Grimbly, Banbury, Oxon.

W. L. Underhill, Tipton, Staffordshire.
Edward Foot, Salisbury.
George Kidgell, Wellington.
George Ross, Hull.
W. Dunning, Hull.
W. J. Clark, Skipton Bridge, Yorkshire.
J. S. Turner, Gladthorp, Notts.
Robert Fothergill, Bedale, Yorkshire.
J. P. Sargeant, London.
W. Brattle, Ryassh, Kent.
Richard R. Alderson, Everingham, Yorkshire.
W. Loney.
J. Stedman, Godalming.
Hugh E. Walker, Loughlann, Mayo.
Walter B. Stack, Demerara.
John Staddon, Surrey Dispensary.
Benjamin Thomas, Narbeth.
S. Hodgson, Halifax.
John D. Charles, Stowe-in-the-Wolde.
Harry Green, St. Pancras.
Henry Johnson, St. Helen's, Lancashire.
Andrew Gordan, Ballymena.
Thomas Courtney, Ballymena.
Thomas Mulligan, Banbridge, Ireland.
H. S. Ferguson, A.
Richard Allat, Bretton, Yorkshire.
James Johnson, Lancaster.
J. S. Blackall, Dublin.
Henry Holgate.
George Yarnold, Romsey, Hants.
W. Hallam, Newcastle, Staffordshire.
Charles Orton, Derbyshire.
Nathaniel Coats, Ilfracomb.
W. J. Loch, E. I.
O. Copland, Chelmsford.
J. M'Connell, Newtown Stewart, Tyrone.
A. Fry, Desford, Leicester.
G. S. Roper, Mappelcombe, Dorset.
J. Harrison, Stockport.
Henry Gibson, Hull.
R. Garrett, Montreal.
J. S. Johnson, Peterborough.
T. Lewis, St. Alban's.
J. Paget, Yarmouth.
P. Wallis, Ballina, County Limerick.
George M. Mayberry, Kenmare.
W. Marsden, Thornhill, Yorkshire.
John Smith.
E. Taylor, Purbrook, Hants.
C. Snape, Chester.
James Walton Hollingsmill, Halifax, Yorkshire.
F. Hanham, Bath.
G. Crump, London.
W. M. Coultate, Burnley.
T. B. Monsarrat, Dublin.
John R. Hogg, Brighton.
James Neales, Sandwich.
Ralph F. Irving, Liverpool.
W. G. W. Tayler, Bolton-Row.
Thomas Browne, Saffron Walden.
A. Franklin, Wincanton.
Joseph H. Spencer Leicester.
J. Troutbeck, Congleton.
Henry Richards, Hereford.
Thomas Hudson, Cork.
G. Nelson, Wigton, Cumberland.
Edward E. Tucker, Exeter.
John Blackburn, Liverpool.
Edward H. Thorpe, Dublin.
John Malcolm, Houghton le Skerne.
John W. H. Watling, Bethnal Green.
William Martin, Reigate.
John G. Gregg, Buttevant, Cork.
William Suffield, Abbeyleix, Queen's County
J. Bratton, Shrewsbury.
Fred. Plant.
Charles Hogg, London.
Josiah Hammond, Wallington, Suffolk.
C. T. S. Kevern, Devonport.
J. P. Wilding, Wallybourn, Salop.
A. Hamilton, Ampthill.
A. O'Gorman, Ennis, County Clare.
Thomas M'Kenzie Smith, Bideford.
Hugh Birt, Petworth.
John C. Seccombe, Plymouth.
Thomas Gray, Gosport.
William D. Pearse, Launceston.
Alexander Paull, Camborne.
Lawrence Martin, Dundalk.
Augustus H. Churchill, Oswestry.
Thomas Pettigrew, County Derry.
George W. Macready, Bristol.
Robert Day, St. Neotts.
William Baly, London.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

June 16, 1836.

Joseph Williams, Lark Hall Lane, Clapham.
William Barber, Eye, Suffolk.
John Henry Hutchins, Trinity Sq., Tower Hill.
William Grant Macfarland, Tulse Hill, Surry.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *June* 14, 1836.

Abscess	1	Hooping Cough	14
Age and Debility	49	Inflammation	27
Apoplexy	14	Brain	3
Asthma	13	Lungs and Pleura	7
Cancer	3	Influenza	1
Childbirth	6	Insanity	3
Consumption	66	Liver, diseased	14
Convulsions	28	Measles	11
Croup	3	Mortification	3
Dentition or Teething	10	Paralysis	2
Dropsy	15	Rheumatism	1
Dropsy on the Brain	16	Small-pox	11
Dropsy on the Chest	1	Sore Throat and Quinsey	2
Erysipelas	2	Thrush	1
Fever	10	Unknown Causes	4
Fever, Scarlet	8		
Fever, Typhus	3		
Gout	3	Casualties	6
Heart, diseased	1		

Increase of Burials, as compared with the preceding week . . } 128

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

June, 1836.	THERMOMETER.		BAROMETER.	
Thursday . 9	from 49	to 66	29·65	to 29·73
Friday . . 10	53	69	29·74	29·79
Saturday . 11	53	67	29·71	29·78
Sunday . . 12	43	69	29·97	30·13
Monday . . 13	44	73	30·17	30·21
Tuesday . . 14	51	76	30·17	30·05
Wednesday 15	45	79	29·90	29·79

Prevailing winds, S.W. and S. by E. Generally clear, except the mornings of the 9th and two following days, raining heavily on the evening of the 10th and morning of the 11th; lightning in the south, from 9 till 10, on the evening of the 15th.

Rain fallen, ·175 of an inch.

CHARLES HENRY ADAMS.

NOTICES.

"MENTOR" is too severe: the occasion surely does not warrant such strong terms as those of quackery and humbug.

"SCRUTATOR" cannot reasonably expect us to give insertion to his *anonymous* reply to an *anonymous* letter published in another journal.

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, JUNE 25, 1836.

LECTURES
ON
MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XXXIX.

MERCURY—*continued.*

IN this lecture I shall examine the remaining mercurial compounds employed in medicine.

Protochloride of Mercury.

History and synonymes.—It is not satisfactorily known who was the discoverer of this compound. In 1608, Beguin (who called it *draco mitigatus*) explained the method of its manufacture. Sir Theodore Mayerne (who was born 1573, and died 1655,) is said to have first termed it *calomelas*, —some say from *καλος*, *fair* or *good*, and *μελας*, *black*, because he had a favourite black servant who prepared it; others, because it was a *good* remedy for the *black* bile. The synonymes which it has had, besides those now mentioned, are so numerous, that I can only notice a few of them,—some founded on theoretical notions of its composition, as, *subchloride*, *dichloride*, and *submuriate of mercury*; others partly from its effects, as, *mercurius dulcis*, and *hydrargyrum muriaticum mite.*

Native state.—*Corneous mercury*, or *native calomel*, is found in Deux-Ponts, in Carniola, and in Spain. It occurs in crusts, and also crystallized in four-sided prisms, terminated by pyramids.

Preparation.—There are several processes for obtaining calomel.

1. *Process of the London Pharmacopœia.*—Mercury and sulphuric acid are boiled together (usually in an iron cauldron) by which a bipersulphate of mercury is procured. This is then triturated with metallic mercury and common salt, and the mixture sublimed. In one chemical manufactory, in which I saw the process going on, the subliming apparatus might be compared to a large earthen retort, with a short but wide neck, and which opened in an elliptical-shaped receiver (also of earthenware), in the bottom of which was water. The retort was placed in sand, contained in an iron pot set in a furnace.

At Apothecaries' Hall, 50 lbs. of mercury are boiled with 70 lbs. of sulphuric acid to dryness, in a cast-iron vessel; 62 lbs. of the dry salt are triturated with $40\frac{1}{2}$ lbs. of mercury, until the globules disappear, and 34 lbs. of common salt are then added. The mixture is submitted to heat in earthen vessels, and from 95 to 100 lbs. of calomel are the result. It is washed in large quantities of distilled water, after having been ground to a fine and impalpable powder.

Theory.—When mercury and sulphuric acid are boiled together, a portion of the latter is decomposed into oxygen and sulphurous acid,—the first of which unites with the mercury to form the peroxide, while the latter escapes in the form of gas. The peroxide of mercury combines with some undecomposed sulphuric acid, to form bipersulphate of mercury.

Reagents.	Results.
Hg	$2\,\ddot{S}$
$4\,\dddot{S}$	$\ddot{Hg}\,2\,\dddot{S}$

When bipersulphate of mercury is sublimed with chloride of sodium and metallic mercury, we obtain sulphate of soda and protochloride of mercury. We may either assume that the metallic mercury first decomposes the persulphate, and con-

verts it into a protosulphate, which, re-acting on the chloride of sodium, gives rise to the products mentioned,—or that the bipersulphate and chloride, reacting, generate bichloride of mercury and sulphate of soda, and that the nascent bichloride is converted by the metallic mercury into protochloride.

Reagents.	Results.
$\ddot{\text{Hg}}\ 2\ \dddot{\text{S}}$	$2\ (\text{Hg Chl})$
$2\ (\text{Na Chl})$	$2\ (\dot{\text{Na}}\ \dddot{\text{S}})$
Hg	

2. *Precipitated calomel.*—Another method of obtaining calomel is adding a solution of the protonitrate of mercury to a solution of common salt. Protochloride of mercury precipitates (hence its name, "*precipitated calomel*"), while nitrate of soda remains in solution.

Reagents.	Results.
$\dot{\text{Hg}}\ \overset{\therefore}{\text{N}}$	$\dot{\text{Na}}\ \overset{\therefore}{\text{N}}$
Na Chl	Hg Chl

3. *Patent Calomel.* — *Jewell's process for preparing calomel.* —In order to obtain calomel in a state of minute division, Mr. Jewell, of the firm of Howard, Jewell, and Gibson, manufacing chemists, at Stratford, contrived a process which has the further advantage of removing any corrosive sublimate which might be formed. It consists in keeping the receiving vessel filled with steam, so that the vaporous calomel is condensed in it, and takes the form of a fine powder; much finer, indeed, than can be obtained by the usual means of levigation and elutriation. Dr. Paris thinks, that on account of this minute division, calomel, prepared by this process, more readily affects the system than that prepared according to the common method.

Purification.—You will readily observe, from the theoretical view of the process, that calomel may be mixed with corrosive sublimate: and hence it is very necessary that it should be carefully purified. This is best done by washing with distilled water, until all the bichloride is removed, and which may be known by the washings producing no precipitate on the addition of ammonia. In the Pharmacopœia, the calomel is ordered to be mixed with a solution of muriate of ammonia previously to the washing, in order to facilitate the separation of the bichloride. But this proceeding is objectionable; for, according to Mr. Hennell, a hot solution of muriate of ammonia converts calomel into corrosive sublimate and metallic mercury. I have met with one sample of calomel (prepared by a large chemical manufacturer in London) which, from being imperfectly washed, contained the bichloride. It had been given to several patients before its purity was suspected, and had acted most violently on them. You may readily detect corrosive sublimate, by digesting the suspected calomel in distilled water, and testing the supernatant liquid in the way presently to be mentioned for corrosive sublimate.

Properties.— Protochloride of mercury is a crystallizable substance, whose primary form is the right square prism. When obtained artificially, it is usually a white (though sometimes transparent) crystalline mass, rarely presenting crystals sufficiently perfect to determine with accuracy their form. In the shops it is generally met with as a white or yellowish white, odourless, and tasteless powder, which, by exposure to the light, becomes dark coloured. This change, effected by the agency of the sun's rays, is said by Dumas to be owing to the formation of a little corrosive sublimate and metallic mercury; by others it has been supposed to be owing to the evolution of chlorine and the combination of the metal with oxygen. But the experiments of Vogel do not allow us to adopt this hypothesis, since he found the blackened chloride is insoluble in dilute nitric acid. It is not improbable that the change may be analogous to that effected on chloride of silver by the agency of light, and which, according to Wetzlar, consists in the evolution of a little free chlorine, and the formation of a subchloride. Calomel is insoluble in water. When digested in concentrated muriatic acid, it is converted into corrosive sublimate and metallic mercury. Dilute muriatic acid does not act on it in the cold. When heated, calomel volatilizes.

Composition.—Calomel consists of chlorine and mercury.

	Berzelius.	*Thomson.*	*Turner.*
Mercury······	2 atoms = 202·86	2 atoms = 200	1 atom = 202
Chlorine ····	1 atom = 35·48	1 atom = 36	1 atom = 35·42
	238·34	236	237·42

Characteristics.—If it be heated in nitric acid, it is converted into the bichloride and bipernitrate of mercury; and on the application of the tests already mentioned for mercurial preparations generally, we readily obtain evidence of the presence of

mercury. Having thus shown it to be a mercurial compound, we may easily prove it to be calomel by observing that it is insoluble in water, and that on the addition of lime-water, a blackish grey precipitate of the protoxide of mercury is obtained, while the supernatant liquor is found, on the addition of the nitrate of silver, to give evidence of the presence of chlorine in solution. Protochloride of tin, added to calomel, abstracts the chloride and becomes perchloride of tin, while globules of metallic mercury are obtained.

Physiological effects. — Calomel may be ranked among the mild preparations of mercury; for although, in its local action, it is somewhat more powerful than the protoxide, or than those preparations which contain mercury in a finely-divided state, yet it is much milder than any of the other salts of mercury. In *small doses*, as a few grains, it occasionally excites no obvious effects, though more commonly it acts as a purgative; and in very susceptible persons, especially females, it sometimes produces nausea, griping, and great faintness. It appears, from the experience of most practitioners, that adults are more susceptible of the influence of calomel than children. When given to the latter, it usually produces green stools, —an effect which is more frequently observed in suckling infants, and which is usually supposed to arise from the action of calomel on the liver; though Zeller thinks it depends on alterations produced in the condition of the blood; and Kraus is disposed to refer it to the operation of calomel on the milk contained in the alimentary canal. Like other mercurials, it increases the action of the secreting organs, and thus promotes the secretion of bile, and of intestinal mucus; and we also presume it has a similar influence over the secretion of the pancreatic fluid. Neumann, in Gräfe and Walther's Journal (I quote from G. A. Richter's "*Das Quecksilber als Heilmittel*"), states, that a man took two, then three, and subsequently four grains of calomel, daily, for the space of two months, without inducing salivation; but that three months afterwards he became affected with chronic vomiting, the consequence of a scirrhous pancreas, of which he died within four months. From the manner in which the case is related, it is clear the narrator attributed the disease of the pancreas to the use of mercury, —whether justly or not, however, is impossible to determine.

The repeated and continued use of calomel, in small doses, is attended with the constitutional effects of mercurial preparations generally, and which I described in a previous lecture.

In *large doses*, it has been regarded as an irritant poison; and, judging from the fatal effects ascribed to it by several writers, not without reason. Thus Hellwig has reported a case in which a few grains of calomel, taken as a laxative, caused death; Vagnitius saw fifteen grains prove fatal; and Ledelius, half an ounce. Hoffman has also related two fatal cases.

"Whytt, Odier, Quin, Wilmer, Leib, and others," says Gölis, "gave calomel internally in far larger doses; as two, three, and more grains at a time; and continued its use many days in the same dose, without considering the many evacuations from the alimentary canal, or the violent colic pains; and they affirm, that they have never remarked, from the effect of this agent given in these large doses, any bad consequences in the abdomen. Melancholy experience compels me to contradict them. Many times I saw, under those large and long-continued doses of calomel, the hydrocephalic symptoms suddenly vanish, and inflammation of the intestines arise, which terminated in death. Still oftener I observed this unfavourable accident from an incautious use of calomel in croup: viz. where all the frightful symptoms of this tracheal inflammation, which threatened suffocation, suddenly vanish, and enteritis develop itself, which passed rapidly into gangrene, and destroyed the patients."

In the *Times* newspaper of the 26th April, 1836, there is the report of a coroner's inquest on the body of a Mrs. Corbyn, who was destroyed by swallowing 20 grains of calomel, she having previously taken a moderate dose without its exciting what she considered a sufficient effect; and in the *India Journal of Medical Science* * is a case of a lad, aged 14, a native of Nepal, in whom six grains of calomel apparently produced inflammation and ulceration of the mouth, enormous swelling of the face, mercurial fœtor of the breath, mortification, and death. There was no ptyalism.

Wilmer quotes from Pierer's *Annalen*, for April 1827, the case of a lady, who by mistake swallowed fourteen drachms of calomel at once. Acute pains in the abdomen came on, accompanied by frequent vomiting and purging. These symptoms were allayed by oleaginous demulcents; but on the second day salivation and ulceration of the mouth took place. In three weeks, however, she was perfectly recovered. Other violent effects are noticed by Wilmer, Gmelin, and others, but the instances adduced are sufficient to show that dangerous and even fatal effects may result from the use of large doses, and, therefore, that Teichmeyer, Buchner,

* The case is fully reported in the present number of the Gazette.

and others, are justified in ranking it among poisons.

Of late years, however, immense quantities of calomel have been administered medicinally, without giving rise to any symptoms of irritant poisoning, — nay, apparently with the opposite effect; for we have the concurrent testimony of many practitioners, that in yellow fever, cholera, and other dangerous diseases, calomel, in doses of a scruple and upwards, allays vomiting and purging; and on this account has been denominated a sedative. So that while in small doses (as from 2 to 5 grains) calomel is almost universally admitted to be an irritant to the bowels, it is asserted that larger ones are actually sedative. These statements appear to me to be almost inconsistent, and yet they are fair deductions from the experience of numerous intelligent practitioners. We must, therefore, endeavour to accumulate more facts, in order to illustrate the effects of calomel, and for the present confess we have very imperfect information respecting the nature of its action.

The largest quantity of calomel given (as a medicinal agent) at one dose is, I believe, 3 drachms; "and it was followed," says Dr. Christison, from whom I quote the case, which occurred in America, "by only one copious evacuation, and that not till after the use of an injection." I have now before me reports of 18 cases of spasmodic cholera, admitted in the year 1832 into the cholera hospital at Bethnal Green, in this metropolis, in which enormous quantities of calomel were employed by the house-surgeon, Mr. Charles Bennett, (formerly one of my pupils) with very slight physiological effects. When a patient was brought into the hospital, two drachms of calomel were immediately given, and afterwards 1 drachm every one or two hours, until some effect was produced. In 17 out of 18 cases, in which this plan was tried, the vomiting and purging diminished, and the patients recovered. Several of them took from 20 to 30 drachms without the subsequent ptyalism being at all excessive. In one case (a female aged 36 years) $30\frac{1}{3}$ drachms were administered within 48 hours, moderate ptyalism took place, and recovery. In the unsuccessful case which I have alluded to, 53 drachms of calomel were administered within 42 hours, without the least sensible effect.

I do not pretend to reconcile these cases with those recorded by Hellwig, Vagnitius, Ledelius, Hoffman, and Gölis; in fact they appear to me irreconcilable. Dr. Christison, however, suggests that in those cases in which violent effects occurred, the calomel might contain corrosive sublimate; and I may further suggest, the possibility of some sublimate being formed in the stomach by the action of the free muriatic acid (found in the gastro-intestinal secretions) on the calomel.

Mr. Annesley, in his work entitled "*Diseases of India*," asserts from his experiments on dogs, that large doses of calomel diminish the vascularity of the gastro-intestinal membrane. And he accounts for the increased quantity of bile found in the stools after the use of calomel, by supposing that the gall bladder sometimes becomes distended in consequence of the tenacity of the mucous secretion, by which the mouth of the *ductus communis choledocus* is closed; and that calomel acts chemically on the mucus, and detaches it. Both hypotheses appear to me so improbable, that until further evidence is brought forward, I am not disposed to admit either of them.

In concluding this very imperfect account of the effects of calomel, I may add that Wepfer, Viborg, Flormann, and Gaspard, have made experiments with it on animals, and an account of them is given by Wilmer, but as they do not appear to me to throw any new light on the action of this substance, it will be unnecessary for me to take further notice of them.

Uses.—Calomel is made use of for a variety of purposes, some of which I shall endeavour very briefly to point out; beginning with those for which we employ it *internally*.

It is very frequently used as an *alterative*, in glandular affections, chronic skin diseases, and disordered conditions of the digestive organs, more particularly of the liver: but, to produce this effect, it is usually taken in combination, in the well known Plummer's pill, which I shall presently notice.

It is very frequently employed as a *purgative*, though, on account of the uncertainty of its cathartic effects, it is seldom given alone; generally in combination with other drastic purgatives — such as jalap, scammony, compound extract of colocynth, &c. whose activity it very much promotes. We employ it for this purpose when we are desirous of making a powerful impression on the alimentary canal, and thereby of relieving affections of other organs, on the principle of counter-irritation, before explained. Thus in threatened apoplexy, in dropsical affections, and in chronic diseases of the skin. In torpid conditions of the bowels, where it is necessary to use powerful cathartics to produce alvine evacuations, it is advantageously combined with other purgatives: as in paralytic affections. Sometimes we use it to promote the biliary secretion—as in jaundice and other affections of the

liver, in chronic skin diseases, and in various disordered conditions of the alimentary canal not accompanied by inflammation. Moreover, in the various diseases of children requiring the use of purgatives, it is generally considered to be very useful; and its being devoid of taste is of course an advantage.

As an *anthelmintic*, it has long been celebrated, and forms one of the active ingredients in many of the nostrums sold for worms—as "Ching's Worm Lozenges" and "Story's Worm Cakes." I have already mentioned that mercury appears to have no specific influence over these parasites, since they have been found in the workers of the quicksilver mines; and we, therefore, refer any advantages obtained by the use of calomel to its purgative operation.

The practice of exhibiting enormous doses of this substance as a *sedative* in yellow fever, spasmodic or malignant cholera, dysentery, and liver affections of tropical climates, I have before mentioned. I must refer you to the writers on diseases of tropical climates, for a further account of the advantages of this method of treatment, and shall only add, that while several East India army surgeons ascribe a specific sedative operation to the preparations of mercury (some confining it to calomel and mercurial ointment), others have taken a more general view of the subject, and assert that all substances employed in large quantities are sedatives. You will find this to be the opinion of Dr. Wilson Philip and of Delpech; the latter of whom says, that the sudden introduction of large quantities of any unassimilable substances (as mercury or antimony) into the blood, poisons this fluid, and thereby "lowers the intensity of life."

With respect to the uses of calomel as a *sialogogue*, I do not think it necessary to offer many remarks, after the observations already made on the sialogogue uses of mercurials generally. With the view of preventing irritation of the alimentary canal, calomel is usually given in combination with opium, when the object is to produce this effect, unless, indeed, the existence of some affection of the nervous system seem to contraindicate opium. This combination is in common use when we wish to affect the mouth in inflammatory diseases, more particularly in peripneumonia, pleuritis, croup, laryngitis, hepatitis, and enteritis. It is employed also in fever, in syphilis, in chronic visceral diseases, &c.

Calomel is frequently combined with other medicines, to increase their effects; as with squills, to produce diuresis in dropsy; or with antimonials, to promote diaphoresis.

I have, in the last place, to notice the *local* uses of calomel, which has sometimes been snuffed up the nostrils in affections of the Schneiderian membrane; or applied to spots on the cornea; or suspended in thick mucilage, and used as a gargle, in venereal sore-throats; or injected into the urethra, in discharges from this part; or employed as a fumigating agent instead of cinnabar; or, lastly, it has been applied in the form of ointment in various chronic skin diseases, as will be presently noticed.

Administration.—When used as an alterative, it is given in doses of one grain, generally combined with precipitated sulphuret of antimony; as a purgative, from two to five grains; as a sialogogue, in doses of one to three or four grains, combined with opium, twice or thrice a day; and, as a sedative, from a scruple to half a drachm, or even more than this, as already mentioned. I may remark, that the use of acids with calomel frequently causes griping.

The *pilulæ hydrargyri submuriatis compositæ* of the London Pharmacopœia, are more commonly known by the name of *Plummer's pills.* They consist of one part calomel, one part precipitated sulphuret of antimony, and two parts guaiacum. I would here observe, that the two first of these substances mutually decompose each other, producing sulphuret of mercury and chloride of antimony. These pills are frequently employed as alteratives in chronic skin diseases, in the papular and pustular forms of the venereal disease, in chronic liver affections, and in various disordered conditions of the digestive organs. The dose is from five to ten grains.

Unguentum hydrargyri submuriatis. — An ointment composed of a drachm of calomel to an ounce of lard, or spermaceti ointment, is a most valuable application in porrigo favosa, impetigo, herpes, and the scaly diseases (psoriasis and lepra). Indeed, if I were required to name a local agent pre-eminently useful in skin diseases generally, I should fix on this. It is well deserving a place in the Pharmacopœia.

Bi-chloride of Mercury.

History and synonymes. — We have no account of the discovery of this mercurial. Traces of it are to be found in the writings of the Arabian physicians, Rhazes and Avicenna, and Geber has described the method of preparing it. But it is supposed to have been known long anterior to any of these authors. Like calomel, it has had various synonymes, but I shall only enumerate the following: *chloride* or *muriate of mercury*, *corrosive sublimate*, and *corrosive muriate of mercury*.

Preparation. — Mercury and sulphuric acid are boiled together as in the process

for making calomel; and the bi-persulphate of mercury is sublimed with common salt, without the addition of metallic mercury. The subliming apparatus in one chemical manufactory in which I saw it prepared, was a kind of earthen alembic placed in sand, and surrounded by an iron pot, or case. During the sublimation aqueous vapour and chlorine were evolved by the lateral tube connected with the head of the alembic.

Theory.—The explanation for the process is similar to that for calomel. When mercury and sulphuric acid are boiled together, sulphurous acid gas escapes, and a bi-persulphate of mercury is produced, as already explained. By subliming this salt with chloride of sodium, sulphate of soda and bi-chloride of mercury result.

Reagents.	Results.
$\ddot{\text{Hg}}\ 2\dddot{\text{S}}$	Hg 2 Chl.
2 (Na Chl)	2 ($\dot{\text{Na}}\ \dddot{\text{S}}$)

Corrosive sublimate may also be formed by bringing chlorine gas and the vapour of mercury together. The experiment is easily performed on the small scale, and I am informed that it is about to be practised on the large scale by a recently formed company, who require large quantities of this salt.

Properties.—As usually met with in commerce, it is a semi transparent crystalline mass, in which perfect crystals are rarely found. Occasionally, however, they are obtained either by slow sublimation, or from a solution of the salt. Their primary form is the right rhombic prism. Corrosive sublimate has a specific gravity of about 5·2: its taste is acrid, coppery, and persistent. When heated, it fuses, boils, and volatilizes; the vapour is very acrid. It is soluble in about 3 times its weight of boiling, and in about 20 times its weight of cold water; the acids and the alkaline chlorides increase its solubility. Three parts of corrosive sublimate are said to be dissolved by 7 parts of cold, or by 3½ parts of boiling alcohol. Æther dissolves it more readily than alcohol, and will even separate it from its watery solution, and hence is sometimes employed to remove it from organic mixtures.

An aqueous solution of corrosive sublimate readily undergoes decomposition, especially when exposed to solar light; calomel is precipitated, and free muriatic acid is found in the solution. This change is facilitated by the presence of organic substances, as gum, extractive, or oil; whereas it is checked by the presence of alkaline chlorides.

In a previous part of the course I have alluded to the effect produced by corrosive sublimate on albumen*. According to Orfila, the precipitate which is obtained by mixing these two substances, is a mixture or compound of coagulated albumen and calomel; for he says, that if it be digested in caustic potash, (which dissolves the albumen) a black precipitate of the protoxide of mercury is obtained, while chloride of potassium is formed in solution. But Berzelius states, (and the results of his experiments coincide with those of my own) that if potash be added to the recently-formed precipitate, the latter becomes yellow, though by continued digestion with the alkali, it acquires a bluish grey tint, owing to the reduction of the oxide to the metallic state. Whatever may be the change effected by albumen or corrosive sublimate, it is most important to know that the compound which results from their reciprocal action is not poisonous, as I shall presently have to mention.

If animal textures be digested in a solution of corrosive sublimate, they unite with this salt, contract, and thereby increase in density, become whiter, and do not putrefy. In consequence of this change, this solution is employed for anatomical purposes.

Composition.—Corrosive sublimate, or the perchloride of mercury, consists of

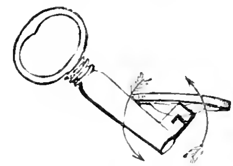
	Berzelius.		*Thomson.*		*Turner.*	
Mercury......	1 atom	= 101·43	1 atom	= 100	1 atom	= 202
Chlorine	1 atom	= 35·48	1 atom	= 36	2 atoms	= 70·84
		136·91		136		272·84

Nature.—To understand some of the phenomena presently to be mentioned, it is necessary that I should here state that the perchloride of mercury has the character of an acid. Thus it reddens litmus paper, and combines with other metallic chlorides to form a class of double salts, called the *chloro-hydrargyrates.*

Characteristics. — Corrosive sublimate is known to be a mercurial compound by the following characters:—1. *Heated* in a tube by a spirit lamp, with caustic potash, an alkaline chloride is formed, oxygen gas is evolved, and metallic mercury is sublimed and condensed in the form of globules on the sides of the tubes. 2. If *lime water* be added to a solution of corrosive sublimate, a lemon yellow precipitate is produced; an additional quantity of the lime water produces a brickdust red precipitate;

* Medical Gazette, vol. xvii, p. 425.

while a further quantity restores the yellow colour. The yellow-coloured precipitate is the hydrated peroxide; the reddish coloured precipitate is the oxichloruret. 3. If a solution of *caustic ammonia* be added to a solution of corrosive sublimate, muriate of ammonia is formed in solution, while a white powder is thrown down, called, in the Pharmacopœia, *hydrargyrum præcipitatum album*, the nature of which I shall examine presently. 4. *Iodide of potassium* occasions a scarlet precipitate of the periodide of mercury; but the precipitate frequently appears at first of a yellow colour, though it quickly becomes scarlet. Dumas thinks it probable, that these yellow and red states of the periodide depend on some isomeric phenomena requiring farther examination. If an excess of iodide of potassium be employed, the red precipitate disappears, owing to the formation of a soluble double salt, in which the periodide of mercury acts the part of an acid, and the iodide of potassium that of a base: this double salt may be called the *iodo-hydrargyrate of potassium*. Corrosive sublimate, and the periodide of mercury, also form a double salt: hence, if a great excess of the former salt be employed, the red precipitate disappears, owing to the formation of a salt which we may term the *chloro-hydrargyrate of the iodide of potassium*. 5. Another test for corrosive sublimate is the *protochloride of tin*, which, when first added, occasions a white precipitate of calomel—while perchloride of tin remains in solution. A further addition of the protochloride of tin converts the calomel into metallic mercury, which falls down in a finely divided state as a greyish powder. 6. An excess of *sulphuretted hydrogen*, passed through a solution of corrosive sublimate, occasions a black precipitate of the bisulphuret of mercury, while a little muriatic acid is formed. If the sulphuretted hydrogen be not in excess, a white precipitate of the *chloro-sulphuret of mercury* is obtained, and which consists of 2 atoms bisulphuret of mercury, and 1 of the bichloride. 7. *Albumen* is another test for corrosive sublimate, though not one of much value, since it will produce the same white precipitates with many other substances. 8. The last means of recognising corrosive sublimate as a mercurial salt, which I shall point out, is *galvanism*. Drop the suspected solution on a sovereign, and apply a key, so that it may touch simultaneously the gold and the solution;—an electric current is immediately produced—the corrosive sublimate is decomposed—the mercury attaches itself to the negative electrode (or pole), namely, the gold—while the chlorine unites with the iron of the positive electrode (or pole) to form chloride of iron. The relative position of the gold, the key, and the solution, will be evident from this drawing; and the arrows point out the



direction of the electric current. Where the gold and the iron touch, electricity passes from the gold to the iron; the latter in its turn gives it out to the solution—and this to the gold again. On examining the sovereign after the experiment it will be found to be stained with mercury, which, when heated, is readily dissipated. With the greatest ease $\frac{1}{1000}$ of a grain of corrosive sublimate may by this means be recognised. In Dr. Christison's work will be found other methods of applying galvanism, but the one just mentioned is perhaps the most practically useful, since it can always be readily made use of,—whereas a more complicated apparatus is found in the hands of a few persons only. Thus it might be applied at a moment's notice to detect corrosive sublimate in the matters vomited by a patient.

9. The preceding tests have not determined the nature of corrosive sublimate further than that it is a permercurial salt. To prove that it is a chloride, the simplest method of proceeding is to add to the suspected solution lime water, or carbonate of soda, then filter and test the clear liquid with *nitrate of silver*, as described under the head of muriatic acid. If nitrate of silver be added to the solution of corrosive sublimate, we obtain a white precipitate of chloride of silver, but mixed with calomel, and it is to avoid the production of the latter substance that I prefer the method of testing just mentioned.

Physiological effects. (*a.*) *On vegetables.*—The effects of solutions of corrosive sublimate on plants have been examined by Seguin, and subsequently by Marcet and Macaire: and from their experiments it appears, that when growing plants are immersed in a solution of this salt, part of the poison is absorbed, a change of colour takes place in the leaves and stems, and death is produced. The effect on the irritable stamina of the *berberis vulgaris*, and on the leaves of the *mimosa pudica*, being the same as that produced by arsenic, and which I have already noticed.* Corrosive

* Medical Gazette, vol. xviii. p. 166.

sublimate is equally poisonous to cryptogamic as to flowering plants, and vegetable tissues soaked in a solution of it are no longer adapted for the development of the *merulius lachrymans*, and of other fungi known under the name of the *dry-rot*. This, in fact, is the principle adopted by Mr. Kyan * for the preservation of timber, and which is now practised on the large scale by the *Anti Dry-rot Company*.

(*b*) *On animals generally.*—The effects of corrosive sublimate on animals have been examined by Ettmuller, Wepfer, Sprœgel, Sir Benjamin Brodie, Campbell, Lavort, Smith, Gaspard, Orfila, Schubarth, and Bostock. You will find an abstract of their experiments (those of Dr. Campbell excepted) in Wibmer's work ("*Die Wirkung der Arzneimittel und Gifte*") to which I have so frequently had occasion to refer. Dr. Christison also notices some of them. Dogs, cats, horses, rabbits, and frogs, are the animals on which the experiments have been tried, and on which sublimate has been found to exercise a poisonous operation, and the same kind of effect is presumed, from analogy, to be produced on all other animals. The results of these experiments have been so briefly yet clearly stated by Dr. Christison, that I cannot do better than quote his words: "corrosive sublimate causes, when swallowed, corrosion of the stomach; and in whatever way it obtains entrance into the body, irritation of that organ and of the rectum, inflammation of the lungs, depressed action, and perhaps also inflammation of the heart, oppression of the functions of the brain, and inflammation of the salivary glands." I may add, that mercurial fœtor and salivation have been observed in horses, dogs, and rabbits.

(*c*.) *On man.*—It has been already remarked, that corrosive sublimate acts on the animal tissues as a corrosive poison. This might be anticipated, when we take into consideration its effect on the organic principles of which the tissues are formed. I have before described the reciprocal changes effected between it and albumen, in consequence of which a white compound is formed, usually described as a chloride of mercury and albumen. Fibrin and corrosive sublimate also mutually react, and produce a compound much harder than pure fibrin, and which is incapable of putrefying. A white compound is also formed by the union of gelatine with corrosive sublimate. We see, then, that the three principles which enter more largely than any others into the constitution of the organized textures form chemical combinations with sublimate; and, therefore, when this salt is applied to the living tissues, we are not surprised to find it first destroys their vitality, and then enters into chemical union with their organic elements. Sir Benjamin Brodie states, that on examining the inner membrane of the stomach of animals poisoned by corrosive sublimate, it was found to be grey, brittle, and here and there pulpy; changes of a precisely similar kind to those produced on the dead stomach.

In order to point out more clearly the effects produced by corrosive sublimate on the human constitution, I shall speak of them under three heads.

1. *In small or therapeutic doses*, as from $\frac{1}{8}$ to $\frac{1}{4}$ of a grain, it frequently exerts a beneficial effect on diseases (syphilitic eruptions, for example) without producing any obvious alteration in the actions of the different organs. Occasionally, especially when the stomach and bowels are in an irritable condition, it gives rise to a sensation of warmth in the epigastrium, and causes nausea, griping, and purging. In such cases it is best to diminish the dose, and conjoin opium. By repetition, we frequently observe that the pulse becomes somewhat excited, and if the skin be kept warm, perspiration is oftentimes brought on; at other times the quantity of urine is increased. Continued use causes salivation, but it is said that corrosive sublimate has less tendency to produce this effect than other preparations of mercury. Maximilian Locher, who from the year 1754 to 1762, cured 4880 patients affected with the venereal disease, at St. Mark's Hospital, Vienna, by the exhibition of this remedy, says, that no person died or experienced the least painful or dangerous symptoms in consequence of its use. He was, however, exceedingly cautious and careful in its employment, and always stopped using it on the first appearance of salivation. Van Swieten says, "I am convinced, from repeated experience, that the menstrual evacuation is not disturbed by the use of this remedy."

2. *Chronic poisoning.—In somewhat larger doses, or by the long-continued use of the before mentioned small doses*, we may bring on gastro-enteritis, and all the usual constitutional effects of mercury. Thus heat and griping pain in the alimentary canal, (particularly in the stomach and rectum) loss of appetite, nausea, vomiting, purging, and disordered digestion, are the gastro-enteritic symptoms. The pulmonary organs, also, not unfrequently become affected; the patient complains of dry cough, pain in the chest, disordered respiration, and expectorates blood. Coupling these symptoms with the specific effects said to be pro-

* See Medical Gazette, vol. xvi. p. 630.

duced on the lungs of animals by the use of corrosive sublimate, we have an important caution not to administer it to patients affected with pulmonary disorders; a caution, indeed, which Van Swieten gives; "for those," says he "who have a husky dry breast, are troubled with a cough, whose nervous system is excessively irritable, and are subject to an hæmorrhage, bear not this remedy without detriment."

Besides the effects now mentioned, there are others which I think it necessary to allude to, only since I have already fully discussed them when speaking of the effects of mercurials generally. I refer now to the state called mercurial cachexia,—to the salivation, the ulceration of the mouth, the affection of the nervous system, &c.

3. *Acute poisoning.*—In *very large doses* corrosive sublimate acts as a caustic poison. I shall follow Dr. Christison, and admit two varieties of it; in one of which, "the sole or leading symptoms are those of violent irritation of the alimentary canal. In another variety the symptoms are at first the same as in the former, but subsequently become conjoined with salivation and inflammation of the mouth, or some of the other disorders incident to mercurial erethysm, as it is called."

First variety: Gastro enteritis. — In this variety the symptoms are analogous to those of other corrosive poisons: namely, violent burning pain in the mouth, throat, œsophagus, and stomach; difficulty of deglutition; sense of suffocation; nausea; violent vomiting (increased by every thing taken into the stomach) of mucous, bilious, or sanguineous matters. The pain soon extends from the stomach over the whole abdomen, which becomes acutely sensible to the slightest impression; violent purging, often of blood; inexpressible anxiety; flushed countenance; restlessness; pulse quick, small, and contracted; cold sweats; burning thirst; short and laborious respiration; urine frequently suppressed; and, lastly, various indications of a disordered condition of the nervous system, such as a tendency to stupor, or even actual coma; convulsive movements of the muscles of the face and extremities; sometimes diminished sensibility of one of the limbs, or of the whole body; or even paraplegia. Occasionally death appears to result from the powerful effect produced on the nervous system, or from exhaustion, or from mortification of the bowels.

Dr. Christison points out the following characters as serving to distinguish poisoning by corrosive sublimate from that by arsenic:—

1. The symptoms begin much sooner than those caused by arsenic.
2. The taste is much more unequivocal and strong.
3. The acridity and irritation in the gullet is much greater.
4. The countenance is flushed, and even swollen; whereas, in poisoning by arsenic, it is usually contracted and ghastly.
5. Blood is more frequently discharged by vomiting and purging.
6. Irritation of the urinary passages is more frequent.
7. Nervous affections are more apt to come on during the first inflammatory stage.
8. The effects are more curable than those of arsenic.
9. Deviations in the symptoms are more rare.

Second variety: Gastro-enteritis, accompanied with or followed by mercurial erethysm.—I here use the term erethysm in the sense in which it is employed by Dr. Christison — namely, to indicate all the secondary effects of mercury. In this variety, the symptoms first observed are those mentioned for the last variety, but they are followed, sooner or later, by those of inflammation of the salivary glands, and of the mouth and its neighbouring parts; profuse salivation, ulceration of the mouth, great fœtor of breath, and other symptoms of this kind, which I have already described in a previous lecture.

Uses.—These may be regarded under the two heads of external and internal. I shall begin with the latter.

(*a.*) *Internal uses.*—The celebrated Baron Van Swieten may be regarded as the principal introducer of corrosive sublimate into practice, as a remedy for *venereal diseases.* He seems to have been led to its employment from a suspicion that salivation was not requisite for curing this class of diseases; and hence he was desirous of obtaining some mercurial "that could be diluted at will, and so tried in a very small dose." Now corrosive sublimate possessed these properties, and hence he commenced his experiments with it, and meeting with great success, recommended it to Maximilian Locher, whose results I have already mentioned. As I conceive little or no utility can be obtained from historical details connected with the use of this remedy, I must refer those curious in these matters to Mr. Pearson's "*Observations,*" and shall content myself with remarking, that although much has been written *pro* and *con*, the balance of evidence is decidedly favourable to its employment. By its partizans it has been asserted to be a safe and efficacious mercu-

rial, to remove venereal symptoms in a very short space of time, and without causing salivation, merely by exciting diaphoresis. Its opponents state, that other mercurials are quite as effectual and speedy—that the cure by corrosive sublimate is not permanent—and, lastly, that its corrosive and irritant properties render its employment objectionable. One of the latest advocates for its use is Dzondi, Professor in Halle, who, in 1826, published a work entitled, "A New Method of curing Syphilis," which "new" method consists in the use of the present preparation. Dzondi states the best mode of using it is in the form of pills made with crumb of bread; and he gives the following formula for their preparation:—

> ℞ Hydr. Sublim. Corros. gr. xij., solve in Aq. Distill. q. s., adde Micæ Panis Albi, Sacchari Albi, aa. q. s. ut ft. pilulæ numero CCXL.

Of these pills (each of which contain one-twentieth of a grain of sublimate), four are to be administered daily, and increased until thirty (containing one grain and a half) are taken at a dose. The best time of exhibiting them is after dinner. In irritable subjects and painful affections, a few drops of the tincture of opium may be taken with each dose. During the time the patient is under their influence, he should adopt a sudorific regimen (as is also recommended by Van Swieten), and take decoction of sarsaparilla.

In *acute diseases* few have ventured to employ it; however, Schwartze gave it in hepatitis after the fever and pain had subsided; Sauter employed it in an epidemic scarlet fever; and Berends administered it in asthenic malignant fevers.

In various *chronic diseases* it has been employed with occasional success. Thus in rheumatism, diseases of the bones, periodical pains, skin diseases, scrofulous affections, disorders of the nervous system, &c.

(*b.*) *External use.*—As a *caustic* it has been applied in substance (either alone or combined with arsenic) to cancerous ulcers, to parts bitten by rabid animals, to chancres, &c.: used in this way, however, it is always objectionable. A *solution* has been employed for various purposes: thus by Baumé, as already mentioned, for pediluvia, to produce salivation; as a lotion in chronic skin diseases (as lepra, psoriasis, scabies, rosacea, &c.); as a wash to ulcers, particularly those of a venereal nature; as an injection in discharges from the urinary organs; as a collyrium in chronic diseases of the eye; and as a gargle in ulcers of the tonsils.

Mode of administration.—For internal use it is given either in the form of pills (Dzondi's formula for which I have already given), or of solution. It may be administered dissolved in water (as in the officinal solution), or in spirit of wine, or in æther. In this way its dose should be from one-sixteenth to one-eighth of a grain. The mildest, and, therefore, safest method of employing it, is in the form of pill. For external use a solution may be employed, consisting of from half a grain to two or three grains dissolved in an ounce of water.

Liquor hydrargyri oxymuriatis (Ph. Lond.)—A fluid ounce of this solution contains half a grain of corrosive sublimate. Its dose is from half a drachm to two drachms. As already mentioned, it undergoes decomposition by keeping.

Antidotes.—Several antidotes have been recommended; those deserving of the most confidence are the following:—

1st, *Albumen.*—I have already alluded to the decomposition of corrosive sublimate by albumen. The compound which results from their mutual action appears to be inert, or nearly so. In Dr. Christison's work on Poisons will be found several cases noticed, in which albumen has been most effectual: one of the most interesting of which is that of Thenard, who inadvertently swallowed a concentrated solution of corrosive sublimate, but by the immediate use of whites of eggs suffered no material harm. Peschier states that one egg is required for every four grains of the poison.

2. *Gluten of wheat* has been recommended by Taddei, and may be employed when albumen is not procurable. Wheaten flour (which contains gluten) will probably answer as well as the pure gluten.

3. *Milk*, in the absence of albumen or flour, may be used.

4. *Iron filings* are stated to be useful, by reducing the corrosive sublimate to the metallic state.

5. *Meconic acid* is also said to be an antidote, by forming an insoluble mercurial meconate; but a knowledge of the fact is of little practical value, since the acid is not generally procurable; and tincture of opium, which contains it, cannot be safely used in sufficient quantity; for Dr. Christison finds that five grains of corrosive sublimate require an infusion of thirty-three grains of opium to precipitate the whole of the mercury. The other parts of the treatment for acute poisoning by corrosive sublimate are the same as for other irritant poisons.

Hydrargyrum Præcipitatum Album.

History and synonymes.—This compound was prepared by Raymond Lully. Lemery pointed out two methods of pro-

curing it, and hence it is called "*Lemery's White Precipitate,*" in order to distinguish it from precipitated calomel, which, on the continent, is called "white precipitate." This preparation has been known by other names, as *cosmetic mercury, muriate of ammonia and mercury, ammoniacal oxichloruret of mercury*, &c.

Preparation.—First dissolve sal ammoniac, and afterwards corrosive sublimate, in the same portion of distilled water. To the solution thus obtained add subcarbonate of potash. Wash and dry the precipitate.

Theory.—Muriate of ammonia and corrosive sublimate form a very soluble double salt, called *sal alembroth*, in which the muriate of ammonia represents the basic, and corrosive sublimate the acid constituent: hence we may term it *chlorohydrargyrate of muriate of ammonia.*

When subcarbonate of potash is added, two atoms of potash react on one of the bichloride, forming two atoms of chloride of potassium, and one of the peroxide of mercury: the chloride remains in solution, while the peroxide precipitates, in combination with ammonia and muriatic acid (or chlorine). The carbonic acid is evolved.

Properties.—It is a white odourless powder, having a taste at first earthy, but afterwards metallic. It is insoluble in water and alcohol.

Composition.—It has been analysed by several chemists, and its constituents are said to be peroxide of mercury, ammonia, and muriatic acid.

	Hennell.	*Mitscherlich.*
Peroxide mercury ..	80	82·2
Ammonia	20	7·1
Muriatic acid		10·7
	100	100·0

These proportions are very nearly equal to one atom of each of the constituents. Chemists are not agreed as to the nature of this compound,—that is, as to what is the mode of combination of its parts.

We may, in fact, regard it as a compound of—

1 atom peroxide of mercury	218
1 atom sal ammoniac	54
	272

Its symbol would be—$\ddot{\text{H}}\text{g}$ Am H Chl

Mitscherlich considers the sal ammoniac in the light of an acid, and the peroxide of mercury as a base; according to this view, the compound should be termed *ammoniacal muriate of mercury.*

Or we may regard it as a double salt, composed of bichloride of mercury and hydrargyrate of ammonia. To make this agree with the analysis before quoted, we have only to double the number of atoms, and then the composition of the salt will stand thus:—

1 atom bichloride of mercury ..	274
1 atom di-hydrargyrate of ammonia	252
2 atoms water	18
	544

Its formula will be—

$$\text{Hg } 2 \text{ Chl} + 2 \text{ Am } \ddot{\text{H}}\text{g} + 2 \dot{\text{H}}$$

Physiological effects.—Judging from the experiments and observations of Hillefield, Palmarius, Chalmer, and Naboth, it appears to be a very powerful poison.

Uses.—It is used as an external application only, and principally in skin diseases (as porrigo, impetigo, herpes, and scabies,) but also in psorophthalmia, and other affections of the eyelids. It is usually employed in the form of ointment (*unguentum hydrargyri præcipitati albi*), composed of a drachm of white precipitate to an ounce and a half of lard.

Iodides of Mercury.

History. — Three iodides or *iodurets* of mercury are known; namely—

1. The *green*, or *protiodide.*
2. The *yellow*, or *sesquiodide.*
3. The *red*, or *periodide.*

Of these the first and the last only have been used in medicine.

Preparation and properties. — 1. *Green*, or *protiodide.* — Mix 238 grains of calomel with a solution of 166 grains of iodide of potassium. Double decomposition takes place,—chloride of potassium is formed in solution, while protiodide of mercury precipitates.

It is a green powder, insoluble in water and alcohol, but soluble in æther. It consists of—

	Berzelius.	*Thomson.*	*Turner.*
Mercury	2 atoms = 202·86	2 atoms = 200	1 atom = 202
Iodine	1 atom = 126·56	1 atom = 126	1 atom = 126·3
	329·42	326	328·3

2. *Periodide, biniodide, deutiodide,* or *red iodide* of mercury.—This is readily prepared by adding a solution of corrosive sublimate to a solution of the iodide of potassium, as long as any precipitate is produced.

It is a red substance, soluble in alcohol, very slightly soluble in water, and soluble in æther. It consists of—

	Berzelius.	Thomson.	Turner.
Mercury........	1 atom = 101·43	1 atom = 100	1 atom = 202
Iodine	1 atom = 126·56	1 atom = 126	2 atoms = 252·6
	227·99	226	454·6

Physiological effects.—The operation of the iodides of mercury is imperfectly known. In *large doses*, they may be regarded as corrosive poisons; in *small and repeated doses*, they are supposed to combine the effects of mercury and of iodine, and to exert a powerful influence over the lymphatic and glandular system. The biniodide is the most powerful.

Uses.—They have been employed, both externally and internally, in syphilitic and scrofulous diseases, more especially when they occur in the same subject. *Internally*, they may be employed in the form of pills, or dissolved in æther (the biniodide may be dissolved in alcohol). The dose being 1-6th of a grain, gradually increased to ½ gr. *Externally*, the iodides are used in the form of ointments, composed of an ounce of lard and from gr. xv. to ℈ij. of either of the iodides.

Bisulphuret of Mercury.

Two sulphurets of mercury are known—a protosulphuret and a bisulphuret: the latter only is used in medicine. It varies in its colour, being sometimes black, at other times red. Both varieties are contained in the Pharmacopœia.

(*a.*) *Hydrargyrum Sulphuretum Rubrum.*

History.—Theophrastus says that *cinnabar* (κιννάβαρι) was accidentally discovered, by Callius, about ninety years before the magistracy of Praxibulus, of Athens—that is, 494 years before Christ.

Native state.—The principal repositories of native cinnabar are Idria, in Carniola, and Almaden, in Spain. It occurs both massive and crystallized; the primary form of its crystals being the acute rhomboid.

Preparation.—It is prepared by mixing mercury with melted sulphur; and, as soon as the mass begins to swell, it is to be removed from the fire and covered. When cold, it is rubbed to powder and sublimed.

In this process, the heat enables the mercury and sulphur to combine, and form the bi- or persulphuret.

Properties.—Artificially prepared cinnabar has in the mass a dark reddish brown crystalline appearance; but when reduced to a fine powder, is of a beautiful scarlet red colour, and is then termed *vermilion.* It is tasteless, odourless, insoluble in water or alcohol, and unalterable in the air. It burns in the air with a blue flame, the sulphur uniting with oxygen to form sulphurous acid, while the mercury is dissipated in a vaporous form.

Composition.—It is composed of sulphur and mercury.

	Berzelius.	Thomson.	Turner.
Mercury	1 atom = 101·43	1 atom = 100	1 atom = 202
Sulphur........	1 atom = 16·12	1 atom = 16	2 atoms = 32·2
	117·55	116	234·2

Physiological effects.—According to Orfila, pure cinnabar is inert. Thus he found that no effects were produced on dogs by half an ounce, either applied to wounds or taken into the stomach. These results being opposite to those obtained by Smith, it has been presumed that the latter must have employed an impure sulphuret.

The vapour obtained by heating cinnabar in the air is poisonous; but this is not in opposition to Orfila's experiments, since this vapour is not sulphuret of mercury, but a mixture of the vapour of mercury (in the metallic or oxidized state) and of sulphurous acid gas. Schenkius has related the case of a young man who died from the use of this vapour, and Hill also saw a cough, violent salivation, diarrhœa, &c. produced by its inhalation.

Use.—Cinnabar is used merely as a fumigating agent, in venereal ulceration of the nose and throat. The method of using it is this:—About half a drachm is placed on a heated iron, and the fumes inhaled as they arise. In the shops, a copper apparatus, with iron heater, is sold for the purpose. In the absence of this, I have sometimes placed the sulphuret on a hot iron shovel, and caused the patient to inhale through a funnel.

(*b.*) *Hydrargyrum Sulphuretum Nigrum.*

History and synonymes.—It is stated that the Chinese used this remedy long before Europeans. Harris, in 1689, first taught

the method of preparing it by trituration. Its most common name is *Æthiops mineralis.*

Preparation.—Mercury and sulphur are rubbed together until globules are no longer visible. In this process, part of the sulphur enters into chemical combination with the mercury, to form the bisulphuret, which is mechanically mixed with the excess of sulphur.

Properties.—It is a black, tasteless, odourless powder; insoluble in water.

Composition.—According to Mr. Brande, it consists of

Bisulphuret of mercury	58
Sulphur	42
	100

It sometimes contains metallic mercury in the finely divided state. This may be recognized by its whitening gold.

Physiological effects. — According to the experiments of Orfila, this preparation, like the last, possesses little or no activity. The late Dr. Duncan also tells us that he has given it in doses of several drachms, for a considerable length of time, with scarcely any effect. It is commonly regarded as alterative.

Uses.—It has been used in glandular diseases, especially of children; and also in cutaneous diseases. The dose to adults, is said to be from five to thirty grains.

PATHOLOGICAL

OBSERVATIONS ON THE BLOOD:

BEING

THE CROONIAN LECTURES

Delivered at the Royal College of Physicians, May 1836,

By George Burrows, M.D.

Late Fellow of Caius College, Cambridge; Assistant Physician to St. Bartholomew's Hospital.

Lecture II.

On the Changes which take place in Blood when stagnant or extravasated within the larger Viscera of the Living Body.

The structure of the spleen, better than that of any other organ, enables us to trace the changes which take place in the circulating fluid when stagnant within it.

Before I proceed to narrate what are these changes, it is desirable to demonstrate the real structure of the spleen, and why it is so peculiarly favourable to illustrate this part of the inquiry. It is quite obvious, that in organs of complicated internal structure, which perform the office of glands and secrete a peculiar fluid, that even if blood should be extrasated into their substance, and its changes be investigated at some subsequent period, that there will often be a danger of confounding the simple changes taking place in extravasated blood, with those which are effected by the presence of the peculiar secretion incorporated within it.

The simple structure of the spleen, and the absence of any peculiar secretion within it, render it particularly favourable to this part of my inquiry. Winslow was one of the first to explain the real structure of this organ: he states, "that in the ox and sheep, no distinct ramification of the veins of the spleen is to be found. In these animals, the splenic vein having entered the large end of the spleen, proceeds for about an inch and a half, after which, instead of an ordinary vein, nothing is to be seen but a channel pierced with holes on all sides. The beginning of this canal is lined with some remains of the proper venous membrane, but even the form of a canal is gradually obliterated, so that at last nothing but burrows hollowed out of the reticular tissue of the spleen can be discovered. If the spleen of the horse be taken and exposed for some time to a stream of water, so that the blood is well washed away, this organ completely changes its appearance; it seems to be composed of a collection of a vast number of cells communicating freely with each other, and likewise with the splenic vein."

Andral, in his *Précis de Pathologie,* says, that "if the interior of the large splenic veins be examined, their lining appears pierced with a vast number of holes; if a probe be passed through any of these holes, it penetrates at once, and without any intervening obstacle, into the cells of the spleen. In proportion as the veins are examined at a greater distance from the trunk, we perceive the holes on their walls become gradually larger; still further onwards, the coats of the veins cease to form any connected surface: the coats of the veins separate into layers, which are in no respect different from those which form the walls of the cells, and the different layers are continuous with each other.

"With respect to the artery it will be found, that immediately after its entrance into the spleen it quickly decreases in size and subdivides into smaller branches, which it is impossible to trace, and which are apparently distributed to the walls of these cells. At no part do we perceive the coats of the artery pierced with holes, as is observed in the vein. In truth, then," concludes Andral, "besides the

lymphatics and nerves, the spleen is composed of the following elements:—1. a fibrous tissue, arranged as a capsule externally, and spread into laminæ internally, between which the blood is poured forth; 2. a vein, which throughout its course communicates by large openings in its coats with these cells, and which is ultimately lost in these cells; 3. an artery which is distributed on the fibrous walls of these cells, but of the manner in which it terminates little is at present understood."

Some of the most distinguished anatomists of this metropolis will not admit that this cellular structure of the spleen has ever been demonstrated, and, indeed, they have gone so far as to say, that Andral's account of its structure is altogether fanciful. I have, therefore, thought it worth while, recently, to make more particular inquiry into this subject, and to obtain several spleens both of horses and of the human subject, and to inject the organ both from the artery and vein at the same time. On account of its large size, and therefore more obvious internal structure, I commenced my observations on the spleen of the horse.

If the splenic vein of the horse be cautiously injected with coloured tallow, and then the artery with some fluid of a different colour, and the two vessels be laid open in their whole course and the hardened tallow be turned out of them, we observe that numerous branches go off from each vessel at right angles to their axis, and make their way in nearly straight lines into the substance of the spleen. If any one of these primary branches of the splenic vein be traced into the substance of the organ, it will be found,—1. that its opening into the splenic vein is protected by a large semilunar valve, capable of nearly closing its orifice; and 2. that instead of dividing and subdividing into smaller branches, as veins usually do in the interior of organs, that the lining of this primary branch is perforated in all directions by small apertures. These openings evidently lead directly into small cells, the parietes of which are not formed by any distinct membrane, but by fibrous filaments, through which there are communications with other surrounding cells. If this same venous branch be carefully traced, it will be found not to terminate in any minute vein or veins, but that the continuity of its lining membrane is gradually lost, and all traces of a continuous channel is lost in a congeries of cells.

In the same manner if any one of the primary branches of the splenic artery be traced, it may be followed a considerable distance into the substance of the organ; it does not divide and subdivide into branches, gradually diminishing in calibre, but immediately after its origin from the main artery, numerous minute arteries are given off at all parts of its course; they proceed at nearly right angles to its axis, and are lost in the filamentous fibres which form the septa of the cells.

Thus the intimate structure of the spleen is, in many respects, like a sponge; it is composed of a series of minute arteries, which terminate in some hitherto unknown manner on the walls of a congeries of cells which communicate freely with each other and with venous branches; these latter all empty themselves in the horse into one principal splenic vein.

There does not, therefore, appear to be any proper parenchyma of the spleen; unless, indeed, the thin capsule, the filamentous layers which form the septa of the cells, and between which the minute arteries, absorbents, and nerves ramify, can be regarded as such*.

Mr. Hunter was well acquainted with this peculiar structure of the spleen; and many very beautiful preparations illustrative of it are to be found in his splendid museum at the College of Surgeons. One in particular displays the cells in the spleen of a horse, which had been distended with alcohol to harden the tissues, and then divided. In this preparation Mr. Owen has carefully traced a splenic vein through its short course in the substance of the organ, and displayed its almost immediate and free connexion with the numerous cells around. The form of the cells approaches the hexagon, a geometrical figure which it is well known combines the largest quantity of matter in a given space. The opening between the cells appears to be circular†.

The simple structure of the spleen thus affords better opportunities than any other organ, for observing the changes which take place in blood, when it remains for any length of time during life stagnant in the interior of an organ.

It rarely happens that persons die in this metropolis with enlarged spleens; I therefore, unfortunately, have but little means of illustrating this point of morbid anatomy by preparations.

But the phenomena of the diseases of the spleen as they occur in this, and more particularly in marshy countries, as well as the changes occasionally observed in the organ after death, will afford information to elucidate this part of my subject.

* Preparations illustrative of these anatomical facts were exhibited in the College Lecture-Room.

† Since this lecture was composed, some most interesting researches into the structure of the spleen and other analogous textures, in man and brutes, have been commenced by my friend, Mr. Stanley, and will no doubt throw much light upon these contested points of anatomy.

Diseases of the spleen are particularly common in Bengal, and in all the marshy districts of the Indian peninsula; and these offer ample opportunities of observing phenomena during life, which strongly corroborate this opinion of the cellular structure of the spleen, and likewise, after death, of observing the changes which have taken place in the contents of these cells.

The late lamented Mr. Twining, in his excellent work "*On the Diseases of Bengal*," states that one of the most common diseases of the spleen in that presidency, is a sudden enlargement, which comes on during the fevers of that district. "In almost all the low and marshy districts of India, whether they be at the mouths of rivers, or at the foot of mountains in the interior of the country, this tumefaction of the spleen," says Mr. Twining*, "comes on very suddenly,—so suddenly, that in a few days it can be seen as well as felt, extending far below the cartilages of the left false ribs. The degree of enlargement which occurs is variable; it is very common to see the spleen extending downwards on a level with the navel, and laterally, from its usual situation, as far as half-way between the cartilages of the ribs and umbilicus. In extreme cases the diseased spleen fills more than half the belly, extending to the right of the navel, while its lower extremity reaches the left iliac region. Several cases of this enormous tumefaction may be seen every year in Calcutta, and some of them recover."

This sudden tumefaction of the spleen, as well as the phenomena which usually precede its sudden subsidence, equally shew us that vascular or cellular distension is the cause of the enlargement. Upon this point Mr. T. says†, "Hæmoptysis, as well as hæmatemesis, occasionally occur when the spleen is very large; and probably the blood which is vomited sometimes flows into the stomach from vessels communicating directly with the splenic vein, as the intumescence of the spleen has been observed in some cases to be immediately reduced by these evacuations of blood. Profuse hæmorrhages from the lungs or stomach sometimes suddenly destroy life; but we see other cases, in which the functions of the system not having been much disordered previously, the patients recover quickly after these profuse losses of blood; the enlargement of the spleen for the time subsides; and the disease is thus entirely cured. The results of these spontaneous hæmorrhages should not be forgotten, in deciding on our plans of treatment in ordinary cases of spleen disease."

* Vol. i. p. 398.
† P. 396.

If these sudden enormous enlargements of the spleen were not occasioned by a simple vascular congestion or stagnation of the blood in a cellular structure, it would be impossible that an attack of hæmatemesis or hæmoptysis could so entirely dissipate the cause of the enlargement of the organ. We must regard the internal structure of the spleen as similar to that of an erectile tissue capable of sudden distension by influx of blood, and of equally rapid subsidence when the blood has flowed onwards.

Mr. Twining has recorded many cases where he had observed this sudden enlargement, and equally rapid subsidence, of the spleen. He mentions among others the case (No. 77) of a child three years of age, who had been ill ten days with intermittent fever, and in whom he found the spleen very large, round, and extending downwards as low as the umbilicus. Tonics, purgatives, and local depletion, were prescribed, and in the course of a fortnight the tumefaction of the spleen had entirely subsided.

Upon the return of this child to its former residence, in a house overlooking the broad ditch of Fort William, from which the water is occasionally drained off, thus leaving exposed a surface of mud, throwing forth most noxious exhalations, the disease quickly returned. The child was again admitted into the hospital with tertian intermittent fever, and much enlarged spleen; and after three weeks treatment with purgatives and tonics, he was discharged perfectly cured of his disease.

During the prevalence of the long-continued rainy season of this year, an unusual number of intermittent fevers have presented themselves at St. Bartholomew's Hospital. Among others I had a very young child under my care, whose spleen was evidently greatly enlarged, and which rapidly subsided under the use of purgatives and the sulphate of quinine.

Another remarkable case (No. 78) related by the author "On Diseases of Bengal," is that of a lady, who consulted him at Calcutta, having suffered from slight intermittent fever for a month. Mr. Twining found the spleen considerably enlarged, nearly of the size of a child's head, round, and very moveable, and extending rather lower down than the umbilicus. This lady was also in the fifth month of her pregnancy. By the repeated application of leeches over the region of the spleen, and by the use of purgatives and tonics, in the course of a fortnight the swelling of the spleen had almost entirely subsided, and at the end of three weeks she was free from all complaint.

The very rapid development, and equally sudden disappearance, of such enormous

enlargement of the spleen, forbid our considering this disease as an actual hypertrophy of the organ or enlargement, in consequence of any interstitial depositions. We can only regard it as due to languid circulation, or actual stagnation of the blood in the venous cells of the spleen. Indeed, the great success which often attends the treatment of more chronic enlargement of the spleen, corroborates this opinion. If such enlargement arose from any new structure in the substance of the spleen, we could hardly anticipate its total removal in the course of a few weeks or months, as is frequently observed.

Similar phenomena were observed in the Walcheren intermittent fever, which committed such fearful devastation among our troops in 1809. Dr. J. B. Davis (Fever of Walcheren, p. 186,) states, "that after the recurrence of a few paroxysms of the fever, the spleen mostly grew so large as to be felt extending beyond the cartilages of the ribs; and when the fever had lasted some time, that organ became enormously enlarged. It was by no means uncommon in that disease to find the spleen weighing from three to five pounds. Dr. Thomas Wright, in his account of this fever, mentions one case where the spleen attained the prodigious weight of nine pounds. In this case, Dr. Wright states, the cells were so distended, that the membranous partitions of the cells were attenuated to the thickness of a cobweb, and the peritoneal coat not firmer nor thicker than goldbeaters' leaf, and so distended with black blood, and of so little consistence, that the finger, in handling the organ, frequently pierced the capsule.

Even some of these formidable enlargements of the spleen disappeared under the use of active purgatives, while other cases terminated fatally. The former, no doubt, arose from simple stagnation of the blood in the venous cells of the organ.

If this simple vascular engorgement of the spleen continue unrelieved for some time, it will terminate in a state of permanent enlargement and induration of that organ. It may be simply enlarged from continued dilatation of its cells, or the walls of these cells may undergo some degree of inflammation; they become thickened and indurated; the contractile power of the tissue is materially diminished, or even destroyed.

Under such circumstances, the blood in the venous cells becomes stagnant; it may remain there in a state of unchanged coagulated fibrin, or in consequence of the inflammation of the walls of the cells, this coagulated fibrin will be so modified in all its physical properties, that it will perhaps be no longer recognized as such, and will assume the most close resemblance to many morbid growths. Analogous modifications of coagulated fibrin in the veins have been pointed out in last year's course of lectures; and it will be found that the state of constitution which particularly favours the stagnation of the blood in the venous cells of the spleen, corresponds very closely with that which has been observed when coagula form in the veins during life. Dr. R. Bright, in the Hospital Reports (vol. ii. p. 63), has remarked the "great tendency to coagulate which the blood in the veins acquires, when the system is under the influence of different debilitating causes;" and he has there also related an interesting case, where a mass of coagulum filled the inferior cava and the iliac veins, and where the spleen was found enlarged, softened, and in a state of sphacelus. It became, therefore, a question with him, "when this state of spleen was discovered, whether the condition of that organ might be supposed to exert any peculiar influence on the circulation, rendering it still more weak, or disposing the blood still more readily to coagulate." I am inclined, however, to believe that these phenomena were both effects of one cause—a peculiar state of constitution, which frequently induces coagulation of the blood in one or other of these parts, and sometimes in both conjointly.

The author of the work on the Diseases of Bengal, states, that with induration and enlargement of the spleen, he occasionally found an obstruction to the flow of blood through the splenic vein. He relates a case which occurred to him, of a man suffering from enlarged spleen, with ascites, and occasional attacks of vomiting and purging of blood. After repeated hæmorrhages, this man sank; and Mr. Twining found the spleen double its natural size, and indurated; the splenic vein was filled with what that author describes as *an organised coagulum*; part of this was traced extending along the vena portæ into those branches which enter the liver; the vena portæ itself was about half filled with this organised coagulum, and the other half was occupied by the ordinary recent coagulum which is usually found in veins. The preparation of these parts was preserved by the late Mr. Twining. I have also myself seen enlarged spleen accompanied with coagula of blood in the splenic veins, in various stages of transformation, confirming this statement of Mr. Twining.

The following case will fully corroborate the foregoing statements:—

Charles Holt, aged 39, was admitted into St. Bartholomew's Hospital, May 16, 1836, under the care of Dr. Latham, with

severe attacks of vomiting and purging of blood, which had commenced two or three days prior to admission. He had long led a life of intemperance, and his bowels had been much confined for a week prior to the hæmatemesis. He was ordered active purgatives, which, however, did not check the hæmorrhage for two days; the stools were black and liquid, manifestly composed of altered blood. After a slight improvement, he suddenly became delirious on the night of the 20th, and expired.

The stomach was found distended, containing about a pint of fluid resembling the lees of port wine, in which were some coagula; the mucous membrane of the pyloric end of the stomach was of a dark colour, very hard, and resisting the scalpel, and firmly attached to the subjacent tissue; there was no ulceration of the stomach; the contents of the small and large intestines were similar to those of the stomach; the lining of the cæcum was dark; as if stained and sprinkled with soot; the liver was hard and exsanguined, and could easily be broken into granules; the spleen was nearly double its natural size, but unaltered in structure; the splenic vein and its branches were much dilated; about midway between the spleen and liver, this vein was distended by a large firm coagulum, of a pale yellow colour, unattached to the lining of the vein, which was smooth and shining. Upon making a cut through this, it appeared to be composed of small cells, containing a purulent fluid; another dense coagulum was firmly attached to the lining of the portal vein, just at the junction of the splenic and mesenteric veins; this coagulum extended into the first and second divisions of the portal vein in the liver. Upon making a longitudinal section of this latter coagulum on its side unattached to the lining of the vein, there was found in the coagulum a small cyst, with a smooth lining, studded with minute red points; the cyst contained about ℥ss. of thin pus. These coagula very nearly obstructed the channel of these veins.

This case is related in confirmation of the opinion already stated in this lecture, that enlargements of the spleen are often owing to obstructions to the return of blood from that viscus, and likewise in illustration of the very remarkable changes which take place in coagula within the large veins returning the blood from the different organs, and in the interior of organs, as in the spleen, liver, &c. *

Mr. Twining, who had so many opportunities of observing cases of enlarged spleen, distinctly describes a peculiar state of constitution, where excessive debility was a prominent symptom, antecedent to the local complaint. He thus writes:—

"Instead of stating the enlargement of the spleen as the principal object for investigation, it will be consistent with a correct view of the various modifications of the disease now under consideration, to speak of the enlargement of the spleen as one of the phenomena usually attendant on a peculiar description of constitutional disorder. The characteristic symptoms of this disorder are, the early accession of general debility, paleness, and a deficiency of red blood in the capillary system of vessels, which is most remarkable in the pale and bloodless aspect of the conjunctiva, hectic, blueness or pearl colour of the scleroticæ, and chlorotic discoloration of the visage, tongue, and gums. At advanced stages of the disease, the circulation is generally languid, and the extremities are apt to become cold, the skin pale, shrivelled, and arid. In the chronic disease, affecting emaciated subjects, we often find a dry furfuraceous desquamation of the cuticle.

"We sometimes see a chronic enlargement of the spleen, in adults of pale, sallow, and unhealthy aspect, who eat and drink as they did in health, and seem to endure the disease for many months without much suffering, except the inconvenience of a tumid belly, attended with shortness of breath and occasional returns of indistinct ague. The disease is far more distressing to children, in whom, if careful attention to diet and correct medical treatment be omitted, the enlargement of the spleen and corresponding decay of the general health, are in most cases progressive, and they sink into a state of marasmus. In fact, a person who has arrived at a mature growth and strength, may exist for a while with a degree of induration and enlargement of the spleen, which is incompatible with growth, or even with the continuance of life, in those below the age of puberty; for we find that children with this disease soon become poor, languid, weakly creatures, whose breath, and the exhalation from their bodies, have a nauseous sickly odour, indicative of the unsound state of their constitutions."

These observations of Mr. Twining, of the effects of progressive enlargement of the spleen on the constitutions of young children, are well illustrated by some curious physiological experiments which were performed on dogs and goats, by Professor Meyer, of the University of Bonn. This gentleman entirely extirpated the spleens of these animals, and found, that shortly after the operation they became

* The preparation of these parts was exhibited on the lecture-table.

much fatter and more salacious. When at Bonn, in 1829, I saw two goats and a pointer dog, all in good condition, which had been so operated upon twelve months previously.

In these animals, after the removal of the spleen, there appears to have been such an increased supply of blood to the other arteries arising from the aorta, that the powers of digestion and propagation received a sudden stimulus. In the children with enlargement of the spleen, so undue a proportion of blood accumulated in that organ, that the alimentary canal was insufficiently supplied, and hence nutrition and growth almost entirely suspended.

Hence, then, the phenomena attending the sudden enlargement of the spleen; the remedies by which it is cured, which are local depletion and tonics; the various accidents, such as hæmorrhages from the mucous membrane of the stomach, bowels, and lungs, which afford such surprising relief to persons labouring under enlarged spleen; the peculiar state of constitution which induces this complaint, as well as stagnation and coagulation of the blood in the great veins; all would lead us to the conclusion that its structure must be cellular, and thus coincide with anatomical investigation, and that its enlargement is owing to stagnation of blood in its cells. Let me, then, now direct your attention to the various conditions in which this stagnant blood is found after death.

It is in the chronic and aggravated cases of enlargement of the spleen, that we shall obtain opportunities of observing its morbid anatomy, and of tracing the various changes which take place in the blood stagnant in the venous cells. The various morbid states of the spleen will generally be found in those disorders where the whole mass of the blood is vitiated, or where the portal or capillary circulation on the surface of the body is greatly obstructed.

Mr. Twining states, that one of the most frequent diseased appearances of the spleen, occurring in unhealthy persons, who sink under the remittent fever of Bengal, is a soft rounded enlargement of the spleen, the texture becoming much less firm than in the healthy state, and easily broken if the finger be pushed abruptly against it. In some cases, the organ is so much softened that it resembles a great clot of blood wrapt in a thin membrane: the interior of the organ varies much in colour, from black to blue, or brown. In extreme degrees of softness, when any attempt is made to lift the tumid spleen, the fingers are thrust through the membrane and the organ breaks down in the hands, which are covered with a dark sanious gore.

Dr. Wright, in his account of the Walcheren fever, relates cases where he found the spleen in a similar condition. This peculiar softening of the spleen, which is too well known to require a more particular description, is generally found, in this country, in persons dying from adynamic fevers, with petechiæ on the surface of the body, as well as in those dying from purpura and scurvy.

Now in these diseases it is pretty generally admitted that the whole mass of the blood is vitiated, and has lost its power of coagulation. In such cases as these, the liquid blood may be washed from the cells of the spleen by a current of water, and leave the organ a simple mass of fibrinous bands, in which also the cellular structure is very visible. In such diseases, the blood collected in this organ undergoes no further changes than that distributed to other parts of the body: it is incapable of self-coagulation, and therefore, of course, of either organization or conversion into any new substance.

The spleen is, at other times, found in quite a contrary condition; it is oblong, and its texture firmer than in the natural state; the colour is pale brown, or a dusky red. This state of the organ is found in those diseases which are accompanied by intense shivering, or long continued coldness of the surface, as in severe intermittent fevers. The supplemental functions of the spleen are here unduly called into action, the cells become permanently dilated, and hence is formed the ague-cake, or enlarged spleen of marshy countries.

In some old cases we find the spleen more indurated and friable; so that when it is handled, without much force, it breaks down like a piece of old moist cheese. Dr. J. B. Davis found a similar condition of the spleen in severe attacks of the Walcheren fever. When that organ had acquired immense size, its whole consistence appeared changed. "It was hard, yet of that friable nature as to admit of being broken into pieces between the fingers." Andral asserts *, in his pathological work, that the hardening of the spleen, such as it is most commonly found, arises from a modification of the blood contained within its cells. The blood appears of an unusual density; so much so, that, in cutting through the spleen, the surface looks like a slice of liver. In such cases, no blood escapes upon making cuts through the spleen, and its tissue appears hard and dry. "The blood in the cells," says Andral, "has become coagulated, and gives these various aspects."

Circumscribed masses, of different dimensions and of every shade of colour,

* Précis de Pathol. vol. ii. p. 423.

from dark red down to a pale yellow or dead white, are not uncommonly found in the spleen. Upon making sections of some of these, transverse fibrous bands are discovered; their substance is hard and elastic, and they have a strong resemblance to the morbid product termed carcinoma. Upon cutting through others, their substance is softer: it appears pultaceous, or even like the cretaceous deposits so often found at the apex of a lung. In some of these masses the substance is found quite softened, like cream-cheese, or thick cream, and either on the surface or within the substance of the mass, may be seen collected some of the colouring-matter of the blood. In fact, such masses closely resemble encephaloid fungus.

The substance of other masses are obviously nothing else than the coagulated fibrin of the blood, partially deprived of its colouring matter. It may be separated into layers, just like the coagula deposited in an aneurismal sac, or the mass may be ragged and fibrous, very similar to the strata of coagulated blood which is effused between the muscles of the limbs in aggravated cases of sea-scurvy. In short, it sometimes happens (and I have seen instances myself), that in the same spleen may be found several of these masses, some of them having all the characters of recently coagulated blood, others of fibrin deprived of its colouring matter, simply hardened or softened with fibrous bands intersecting the mass; while some few will bear such strong resemblance to fungus hæmatodes that a very able pathologist, at first sight, described them as such, but afterwards acknowledged the mistake.

If the spleen be carefully examined when it presents those various conditions at different parts of its substance, it will often suggest the origin of tumors, which would otherwise have been altogether mistaken in their nature. Upon this interesting and as yet too little investigated point of pathology, I will quote some observations from Andral, (*Précis*, vol. ii., p. 424).

" We occasionally find in the midst of the parenchyma of the spleen one or several masses very distinct in their colour from the surrounding parts. Sometimes these masses are of a uniform white tint, sometimes in the different layers of which these masses are formed we can follow all the various stages of transformation, from the reddish tint which differs in no respect from the colour of the rest of the spleen, excepting that it is a little lighter, down to a substance of complete dull white. In the midst of these masses we can easily recognise the proper fibrous substance of the spleen, and even trace its cells.

" If we dissect out the veins which terminate in these masses, we often find them filled with coagulated blood deprived of its colouring matter. These masses of a reddish, yellowish, or whitish colour, may have the same degree of hardness as other parts of the spleen, or they may be soft, easily broken down, almost liquid or pultaceous in some parts. " In all this," says Andral, " what do we see?" Nothing but a change in the colour and consistence of the blood which is held in the cells of the spleen: there is a simple modification of the component parts of the blood, without any new production.

" Does it appear extraordinary that the blood in the cells of the spleen should be thus modified in its physical qualities without the intervention of new elements? Let us recur to what takes place in the veins: in these vessels the blood frequently coagulates, deposits the colouring particles; then gradually loses the cohesion of its particles; here and there it is found changed into a pultaceous mass, into a sort of pap, which no one would recognise or admit to be blood, unless they had traced it through its various stages of transformation. There are other cases where the blood having coagulated in the veins during life, far from becoming softened, acquires a great degree of hardness.

" In the spleen, as in the veins, are these remarkable changes in the blood the result of the single fact of its stagnation there? " In such cases," inquires Andral, " is it a simple physical or chemical change taking place?" At present it appears to me impossible to say how far these changes are attributable to the vitality of the blood itself, to its peculiar mode of parting with its vitality, or whether they are to be ascribed to the effects of any fluids poured out by the arteries of the spleen into its cells, and thus mixed with the contained blood; or lastly, whether the blood thus stagnant in the cells may not sometimes undergo decompositions which can only be regarded as chemical alterations.

In detailing the changes which take place in the blood coagulated during life in the heart and great vessels, in the capillaries, and also when extravasated from them, I have stated that resting upon numerous experiments and observations, it was my opinion that the blood itself, from causes purely physical, may be converted into pus.

This same fluid is occasionally found in the spleen. It sometimes appears collected in a large quantity, forming a distinct abscess. At other times small globules of pus are detected quite distinct from each other in the centre of the masses of coagulated blood in the cells of the spleen, and apparently eliminated from the blood

itself: lastly, in some cases the pus is not distinctly separated from the blood, but the two fluids are mingled together. In this latter case collections of pus are found in other parts of the body, and that found in the spleen is probably brought there and deposited: in the former it appears more probable that the pus is separated from the coagulated blood, or the blood itself undergoes some peculiar physical change in the part, and is converted into pus.

Andral states that he has found small cysts in the midst of the coagulated blood in the splenic cells, similar to those which I have described as occasionally existing in the cavities of the heart and large veins. It seems probable that these cysts take their origin in the masses of coagulated blood in these different situations.

Thus within the splenic cells, as in other parts of the circulatory aparatus, we find many varieties of morbid structure which take their origin in all probability from the coagulated fibrin, which either undergoes simple physical changes of consistence, colour, &c., or actually becomes obedient to physiological laws, assumes an organization, and evolves from or within itself membranes, tissues, substances, and fluids, similar to other organised parts.

FATAL EFFECTS OF CALOMEL.

Mr. Campbell, of Nepal, under date January 10, 1834, gives the following case in the *India Journal of Medical Science*:—

Chota Ram, a delicate lad, 14 years of age, arrived at Catmandoo, from Tirhout, about the 14th of December last. On the 18th he was attacked with the usual symptoms attending Turaii fever, when contracted in the cold season—shivering, followed by general fever, without any serious local affection. He applied at the hospital, and took from the native doctor two purgative pills, containing calomel, grs. iij.; colocynth, grs. viii.: and on the following morning one drachm of the pulv. jalapæ comp.* On the 20th I first saw him; he had been freely purged by the medicine. On the 19th, and up to this morning, was free from fever.

20th.—Fever returned, preceded by ague; complains of pain in right hypochondrium; eyes yellow; tongue loaded, white.

Repeat medicine.

21st.—No fever; is freely purged.

22d.—No sleep during the night, from violent pain of the head and face; left side of face enormously swollen; gums very painful; no salivation, or mercurial fœtor of breath; slight fever.

To have Sulphur, grs. xxx., with Opium, gr. iss., twice a day; and Alum gargle for mouth.

23d.—Right side of face equally swollen with left; cannot sleep from pain of face; no salivation.

Continue medicine.

24th.—Swelling of face and pain as before; strong mercurial fœtor of breath; slight fever, which does not intermit.

To have Pulv. Jalapæ, ʒj. Continue Sulphur and Opium.

25th.—Face not so large; left cheek shining; upper lip and left angle of mouth quite hard; inner surface of mouth (left side) ulcerated, and of a dark brown colour. No salivation; great thirst; fœtor most offensive; slight fever continues; bowels freely moved.

Cont. Sulph. et Op. To have Borax and Sugar gargle, and Milk-diet.

26th.—Hardness of upper lip and left angle of mouth increased; the feel of these parts is that of a cancerous lip, hard and inelastic; ulcer spreading, and black; no salivation; all the teeth loose; fever and great pain continue.

Cont. medicamenta.

28th.—All the symptoms increased in severity.

30th.—Swelling of upper part of face diminished, but the integuments of nose, upper lip, left cheek, and chin, shining and tense; ulceration has spread over the whole mouth, is foul, and discharges a bloody fœtid fluid. He has much difficulty in swallowing; is a little deaf, and in great agony; borax wash gives momentary relief; bowels keep open.

Omit. Sulph. c. Opio. ℞ Acet. Plumbi, gr. ij.; Opii, gr. j. M. ft. pulvis sumat bis in die.

31st.—A copious discharge of sanious fluid, tinged with blood, from the mouth; fœtor of breath intolerably offensive; small shreds of putrid skin come away

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* This is the house medicine. I always keep in readiness three of the pills containing cal. 4½ grains; ext. colocynth, 12 grains.

from the mouth; fluids with great difficulty swallowed.

Cont. med. ut heri.

Jan. 1st.—Swelling of face has returned; breathing sonorous; discharge from mouth increased; a similar discharge from nostrils; great thirst; half the fluid taken at the mouth returns by the nostrils; cannot speak; is quite deaf; strength failing fast, and emaciation of body keeps pace with it. Intolerable stench from whole body; cannot sleep nor lie down; his pain is agonizing; the bloody discharge runs involuntarily from the mouth; the substance of the gums and inside of mouth comes away in putrid shreds; moans unceasingly, and presents altogether a most melancholy spectacle.

Continue Acet. Plumbi c. Opio.
℞ Ext. Hyoscyami, grs. vj. h. s. To have spiced Madeira ad libitum. Tincture of Myrrh gargle, and enemas of warm Milk to be administered during the day.

2d.—Slept some hours; fœtid discharge flows from mouth and nose; deafness complete; cannot speak or swallow; stench horrible; pulse gone at wrist: cannot turn in bed.

Omit. med. omnia; continue enemas.

6, P.M.—Moans incessantly, throwing his arms and legs about; points to his face and ears pitifully; no pulse; left cheek and upper lip greenish coloured, and soft; enemas immediately ejected.

3d, 3 A.M.—Continued to sink, and has just expired.

10, A.M.—The mouth laid open by an incision from either angle to corresponding condyle of lower jaw. The substance of the cheeks and lips, save the integuments, was one mass of black putridity: the gums and palate completely destroyed, the pharynx ulcerated, and the tip and edges of the tonge destroyed. The teeth as firm as ever, and salivary glands natural.

This case needs no comment. A fellow being has fallen a sacrifice to six grains of a medicine, which enjoys the reputation of being one of the best, or has the obloquy of being the most virulent poison, according to the fancies of medical practitioners. Few men have the opportunity of seeing the deadly effects of their good intentions, so clear and rapid as this exhibits them. Such a sight cannot be forgotten; and a narration of it, however imperfect, may prove a beacon to other men.

On the treatment I have nought to say. Sulphur and opium are often useful in restraining excessive salivation, and I used them here although there was no salivation, because I knew not what else to employ. The acetate of lead with opium I have on four occasions of undue salivation used with apparent advantage; but in this mercurial affection neither were of any avail.

The total absence of ptyalism, and the steadiness of the teeth, notwithstanding the number of days during which the disease lasted, is a matter of interest to me; but I cannot at present explain it to my own satisfaction.

REMARKS ON ECTROPIUM AND LAGOPHTHALMUS.

By William Brown, M.D.

Lecturer on the Operative Surgery of the Eye, and Surgeon to one of the Dispensaries for the Poor of the City of Glasgow.

To the Editor of the Medical Gazette.

Sir,

In the Medical Gazette for February 6, 1836, I gave an account of Dr. F. Jaeger's operation for bad cases of ectropium and lagophthalmus. In a subsequent number of the Gazette, I have read, in a letter to Dr. Mackenzie, some remarks on that operation, by my friend, Mr. Thomas Wharton Jones, of Cork, who thinks unfavourably of Professor Jaeger's method of curing the diseases in question, and proposes a new operation.

I do not concur with Mr. Jones in thinking that the integuments must be very much stretched, for Jaeger's operation to do good. In Jaeger's operation, the integuments are separated from the bone, and consequently rendered capable of undergoing a change in position without much stretching being necessary. He fears that the separation of the integuments from the os frontis would be followed by the formation of abscesses. The published accounts of cases do not substantiate this opinion entertained by Mr. Jones. Occasionally adhesion of the wounds by the first intention is only partial, and then their

edges suppurate. I do not pretend to assert that Professor Jaeger's operation is free from disagreeable consequences, but the formation of abscesses, so far as I am acquainted, does not enter into the list of these. Smart inflammation, requiring active treatment for its removal, —nausea and vomiting, demanding the use of opium and effervescing draughts, —premature removal, from accident, of one or more of the ligatures,—and ulceration of the edges of the wounds,—are among the actual unfavourable occurrences which occasionally supervene.

Mr. Jones says, that the transverse elongation of the lid might be remedied by the excision of a wedge-shaped piece. This is exactly in accordance with Jaeger's practice, provided he does not find that the removal of an angular piece is insufficient to reduce the transverse diameter of the eyelid to its proper length. In many cases, however, he finds it very advantageous to remove a quadrilateral-shaped piece: it may not require to be equilateral; and in some cases it is absolutely necessary to do this.

I admit that the separation of the integuments from the os frontis is an essential part of Jaeger's operation, but I think that this cannot be effected as well from above downwards, as Mr. Jones suggests, as from below upwards, in the manner successfully put into practice by Professor Jaeger. It ought to be recollected, that the integuments for forming the new eyelid in Jaeger's operation are obtained chiefly from the angles of the orbit.

Now I defy any man, either on the dead or on the living subject, to separate the integuments from the angles of the orbit, without mangling the skin, the orbital cellular substance, the conjunctiva, or the eyeball itself, "by making," as suggested by Mr. Jones, "a small cut through the integuments, at the proper distance from the edge of the orbit, and through that opening introducing a straight double-edged scalpel, with which to separate the integuments from the bone above downwards. This consideration will render obvious "the advantage of slitting the eyelid through and through transversely, separating the integuments from the os frontis, and afterwards uniting the edges of the same wound by suture."

The method suggested by Mr. Jones for curing ectropium and lagophthalmus is ingenious, but liable to the same objections which have set aside the operation proposed by Celsus, and all other operations by which it is attempted to cure these diseases by incisions confined to the skin covering the palpebra and adjacent parts. Mr. Jones directs a flap of skin, of an inch and a half in length, to be dissected from the brow and palpebra, and, after the bleeding has stopped, this flap is to be fixed so by stitches, that, after it has adhered, the previously everted lid shall retain its natural position. Considerable contraction, of which it is impossible, *à priori*, to calculate the amount, must take place in a wound of an inch and a half in length, adhering surfaces being subject to the same laws of contraction as a cicatrice of the external skin. Mr. Jones details a case illustrative of the success of his method of cure, but sufficient time had not elapsed after his operations to admit of supposing that contraction would not destroy the result. About five weeks after the operation on left eyelid, and a fortnight after that on right eyelid, had only elapsed, previous to the date of his letter.

In cases of lagophthalmus, in which there is a deficiency, not merely of the external skin but of all the constituent parts of the palpebra—as happens, for example, when the whole thickness of the lid has been destroyed by sloughing or ulceration—the operation proposed by Mr. Jones is perfectly inapplicable. In cases of this nature, Prof. Jaeger's operation may be performed with perfect success.—I am, sir,

Your very obedient servant,

William Brown.

317, Argyll Street, Glasgow,
June 20, 1836.

BLOOD-LETTING BY LEECHING THE SEPTUM OF THE NOSE.

To the Editor of the Medical Gazette.

Sir,

Should the following cases appear worthy of insertion in your valuable journal, you will oblige me by giving them publicity.—I am, sir,

Your obedient servant,

H. B. Burford.

20, Grove-Place, Lisson-Grove,
June 4, 1836.

Case I.—A gentleman, 50 years of age, had, for a period of between two and three months, been troubled with a most severe headache, the pain of which was so intolerable, that, although an active man, and an early riser, he was compelled almost every morning, for the space of two hours, to make unsuccessful attempts to leave his bed; and his family had remarked, that for some few mornings a crop of large red pimples arose on the vertex of the head. Purgatives and tartar emetic ointment having failed, and the patient being a man of very peculiar idiosyncrasy, he did not like to submit to the operation of cupping, from the circumstance of the loss of a very small quantity of blood, occasioning fainting if only from a cut finger.

Under these circumstances, I advised the application of a single leech to the mucous membrane covering the septum of the nose, as recommended by Mr. Wardrop, in his work "On Blood-letting." This appeared so simple a remedy, that the proposition was immediately acceded to by the patient; and the result has been most satisfactory. The leech was applied just before going to bed, and the bleeding promoted by warm fomentation: a considerable quantity of blood flowed; from which time he has experienced nothing of his former suffering; and now, after a lapse of six weeks, there has been no occasion to repeat the bleeding.

Case II.—A lady, 24 years of age, had been troubled for eight years with pain in the head, for which she was treated by an excellent and highly scientific general practitioner, in the neighbourhood where she resided, previous to her becoming my patient. Cupping, general bleeding, and leeches to the temples, have been repeatedly tried in vain. She had been under my care about six months, during which time the pain was always relieved by gentle aperients and stomachics, but never entirely removed. About a month since, the pain became intolerable, not more from its severity than its continuance. I then determined on trying Mr. Wardrop's plan, and ordered one leech to be applied to the septum narium; but seeing that it had bitten very low down, I thought it advisable to recommend a second leech to be applied on the other side of the septum, as high up as possible. The consequence was, that more blood was lost than I originally intended, and a state of faintness supervened, which did not cease until the evening of the next day. She has not had, however, the least return of the pain, and the countenance has assumed a much more cheerful and animated appearance.

From the relief obtained by this mode of blood-letting, I have no doubt that it would be an excellent method of treating apoplexy, as the blood, being taken immediately from branches of the internal carotid artery, the brain must experience more direct relief than can be obtained by any other mode of depletion.

TARTAR EMETIC IN INTERMITTENTS.

To the Editor of the Medical Gazette.

Sir,

I find it stated by the Editor of the Medico-Chirurgical Review, in the January number, p. 192, that the exhibition of emetic tartar in intermittent fever, is, as far as he knows, new. It is a practice which I have, for a series of years, been in the habit of pursuing, and have at different times exemplified in cases of that disease brought into the Charing-Cross Hospital. I was taught that practice by the late Dr. George Fordyce, when I attended his lectures, between forty and fifty years ago; and he has spoken favourably of the exhibition of emetic tartar in intermittents, in his dissertation on that disease, published in 1802. Speaking of relaxants, including tartar emetic, he says, "these medicines produce a greater secretion from all the glands of the body and all the secretory vessels—a softness and pliability of all the parts—a universal sensation of ease and tranquillity; in short, all the appearances that take place in the crisis of fever." Speaking of emetic tartar in particular, he recommends it to be given in half-grain doses (the precise dose given by Westergard); to be repeated every four, five, or six hours. When thus exhibited during the whole period, Dr. Fordyce adds, it often carries off the disease, the pa-

roxysms, after six or eight days, not returning.—I am, sir,

Your obedient servant,

WM. SHEARMAN.

Query.—Is the Editor of the journal correct in considering Celsus to mean the *hot* fit of a paroxysm of fever, by the expression *in ipso impetu?*

W. S.

Northampton Square,
June 16, 1836.

MEDICAL GAZETTE.

Saturday, June 25, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

MEDICAL CLUBS IN THE PROVINCES.

WE learn from different parts of the country, that those humble coteries, or societies, very ridiculously called "Medical Clubs," are beginning to be rather on the increase. Any one hearing the term without further explanation would fancy, that by Medical Clubs were meant certain re-unions of medical practitioners, assembling at stated times to transact business for their common advantage, to discuss questions of difficulty arising in the course of their professional labours, and, perhaps, to secure by co-operation the general interests and respectability of their order. But this would be a mistake. A Medical Club is a different sort of thing. The curious inquirer must figure to himself a small club, similar in principle to those benefit societies, the members of which are associated with the view of obtaining at the easiest and cheapest rate, shoes, hats, or other articles for personal convenience or luxury; he must then substitute for those handicraft matters, physic, splints, and bandages, with medical and surgical advice, all secured in the same way by small weekly or monthly payments; and thus he will have a fair notion of what exists in some localities under the denomination of Medical Clubs. They originate generally with a party of operatives, agricultural labourers, and others, who think fit to patronize some particular "medical man," whose services are tendered to them cheap, and in whose behalf they subscribe about two-pence a month by way of remuneration for standing between them and the calamities of illness. Virtually it must be admitted, that such clubs owe their origin to those practitioners who degrade themselves by seeking or accepting practice on such terms.

Can we wonder that the thrifty and stony-hearted functionaries of the New Poor-Law advertise for tenders, and endeavour to obtain medical aid for the paupers under their charge, at a rate the lowest and the most paltry, when we find that there are members of the profession who voluntarily stoop to become the employés of the clubs we refer to,—if, indeed, they be not the very parties who organize those nuisances? From among some posting-bills which are before us, communicated by valued correspondents, we select one by way of specimen: our town readers may wish to be more exactly informed of the nature of the abuse to which we call their attention.

G * * * MEDICAL CLUB.

The object of this club is to procure MEDICAL ATTENDANCE and MEDICINES when needed. The terms of subscription are as follows:—

	s.	d.
A man, his wife, and family, under 16 years of age, per ann.	4	0
Single persons above 16 years of age, with or without their parents, per annum	2	0

Payments to be made quarterly—viz. June 3d, September 13th, December 13th, in 1836: and if subscriptions are not paid within seven days after they become due, the person in arrear will have no claim on the Club for Medical attendance.

It will be necessary to subscribe six months on the first day stated.

Medicines required for females in lying-in, to be included in the above, but not the attendance of *the medical man*, except in cases of difficulty. When a midwife is in attendance, and his attendance is required, *the medical man* to have 10*s*. from the club.

If the midwife is in attendance on one of the member's wives, and cannot be spared to attend on another, then to have *the medical man* and to have 10*s*. from the club, and the midwife's usual fee from the member.

Broken limbs are included, and other accidents, except by fighting and habitual drunkenness.

Vaccination is included.

The small-pox is excluded if by inoculation, but if in the natural way, to have *the medical man* and medicines.

All persons to go, when able, to *the medical man*, at his time and place, but not out of the town, for his advice.

Bottles and leeches to be returned to *the medical man*, if required.

If in any particular case it is thought necessary to call in further advice to any member or members, a meeting of the members shall be called to consult upon it, and vote for or against a physician and the payment.

[Signed by the two Stewards.]

N.B.—All persons to apply to the Stewards, or some other person appointed by them, for their order to *the medical man*, stating the name of the person wanting his attendance.

This, we can assure the reader, is far from being the most showy and important among the documents of the same sort in our possession: we give it, however, in preference, as it is more simple and brief than any of the others. The "medical man," it will be seen, is not likely to have a sinecure of his appointment, while we hardly think, let him be as active as he may, that he will make any fortune by his business.

All Paris was astounded, a few weeks since, by the announcement of a new *Société Sanitaire*, set on foot with mighty promises. All the world was to be cured and protected from disease at 22 francs a head. Branch offices were appointed in the various *arrondissements*, with medical men attached: some of these men had respectable names, and were to be aided by consulting surgeons and physicians of the first eminence—members of the Faculty. In short, here was a joint-stock-doctoring company about to be established: shares fixed at so much, and the number of shares large, though limited. The newspapers were filled with advertisements announcing the novelty of the plan; and the inestimable advantages about to accrue to the public were still more amply set forth in an *affiche monstre* posted on all the walls, beginning after this fashion, but in letters of foot and a half long:—

22 Francs par An.

SOCIÉTÉ SANITAIRE,
Pour le Traitement de
Toutes les Maladies.
A TOUS!
A tous individus en bonne santé;
(*Prévoyance—Avenir*).
A tous individus malades;
(*Nécessité—Présent*).

Then came the names of the agents and conductors splendidly emblazoned, with a detail of innumerable particulars well calculated to catch the unwary. But the press was not to be so easily caught; the medical journals, more especially, soon sounded an alarm, which struck terror into the hearts of all connected with the scheme; the distinguished parties gradually disappeared—resigned—vanished; and in a few days the whole fabric was among the things that are not,—leaving, however, the memory of its fate for the benefit of future speculators.

Nothing seems to be more universally offensive—nothing strikes the public with a stronger sense of its unnatural impropriety, than the appearance of sordidness

and a grasping spirit of gain on the part of any members of our profession. And such must be the feeling (mingled, however, with no small portion of contempt) which every thinking person must entertain for the encouragers and abettors of those small clubs already alluded to. Without the encouragement of the medical men attached to them—if, indeed, these be not the originating parties—they could not subsist. If medical practitioners were not found mean enough to offer their services to the nominal patrons of these *benefit* societies, no such degradation as that of being in any way connected with them could befal the profession.

But the object of the individuals in question is too evident to be capable of doing any permanent mischief: we only point out their conduct as that which most probably gives a chief handle for the treatment offered to the great body of practitioners throughout the country by the authorities acting under the New Poor-Law.

There cannot, we are convinced, be a single argument urged in favour of these (so-called) Medical clubs. They are engendered in a spirit of greed: supported by none but persons who derive a paltry and degrading income from their maintenance; and patronized by the lowest class of the community, who, whatever *benefit* they may seem to obtain from their two-shilling-a-year contributions, cannot fail to be struck with the humble footing on which their "medical man" places himself, and to entertain a respect for him accordingly. We can very well fancy the appearance which the worthy practitioner must present, when he makes his occasional visits to the "free and easy" patrons who employ him.

We trust we shall not be misunderstood. In making these few remarks on a particular, and what we conceive to be an offensive, mode of rendering medical relief to the lower orders, we are not to be considered as offering the slightest disparagement to practitioners connected with charitable, or with self-supporting, institutions. The observations which we have on several occasions made, respecting the latter establishments more especially, will guard us from any such imputation. Self-supporting dispensaries and medical clubs will not for a moment be confounded by any one who has bestowed a thought on the admirable principle of the former. And the fruit of the two systems is as different as their principle and their plan. The one, as naturally as the sparks fly upward, has a tendency to elevate and exalt the medical character, while the other as certainly degrades it,—reducing it to the level of a mere handicraft calling.

KING'S COLLEGE.

The vacancies which we lately noticed as having occurred in this establishment have been filled up. Mr. Mayo is to succeed Mr. Green, and to teach both Surgery and Physiology; Mr. Partridge is to be sole Professor of Anatomy; Mr. J. Forbes Royle, author of the "Illustrations of the Botany of the Himalayan Mountains," is appointed to the chair of Materia Medica; and Mr. Fergus is to succeed Dr. Watson in the professorship of Forensic Medicine.

REMUNERATION TO SURGEONS CONSULTED IN PAUPER CASES, REFUSED BY THE POOR-LAW COMMISSIONERS.

To the Editor of the Medical Gazette.

Sir,

I take the liberty of forwarding to you the following correspondence relative to a very recent case in this neighbourhood, hoping you will give it a place in the Medical Gazette, in order that the medical practitioners throughout the

kingdom may know what kind of treatment they, and the sick poor under their care, have to expect from the Poor-Law Commissioners.

I believe the letters themselves will clearly explain the nature of the case, without any further introduction from me; but I cannot avoid thus publicly expressing my thanks to my friend Ashhurst Majendie, Esq., the Chairman of the Board of Guardians, for the kind interest he took in the affair, and the promptitude with which he forwarded my statement to the Commissioners.—I am, sir,

Your obedient servant,
G. Harvey.

Castle Hedingham, Essex,
June 19, 1836.

To Ashhurst Majendie, Esq. Chairman of the Board of Guardians of the Halsted Union, in the County of Essex.

Castle Hedingham, Essex,
May 26, 1836.

Sir,—I this morning delivered to the overseer of Tilbury parish an account for attending a pauper, in consultation with Mr. Crown, the parish surgeon, and was informed the bill would be laid before the Board of Guardians for their decision. I therefore think proper to state to you, as Chairman of the Board, a few particulars relative to the case.

On Sunday evening, the 15th instant, about nine o'clock, I received a messsage from Mr. Crown, requesting my immediate attendance (at Tilbury, about five miles from my own residence) on a case of great urgency. On my arrival, Mr. Crown informed me that his patient had a hernia which he could not reduce, although he had for a considerable time employed those measures which are recommended in such cases by the first authorities, and he wished my opinion as to the propriety of performing an operation.

The patient was a young man about 20, and I soon found, from the intractable nature of the case, that without an operation he could not survive, and even with it success was very doubtful: still, as the only means of preserving the life of a young man, I considered it ought not to be neglected. The operation was therefore instantly performed; but I am sorry to add, the poor fellow died the following morning.

I have been thus particular in my description, in order that the Board of Guardians may be fully aware of the serious nature of the case; but it is not to this case alone that I wish to call their attention. I have been very frequently called by the neighbouring practitioners to give an opinion in cases of danger and difficulty, and particularly to decide on the propriety or impropriety of performing operations, and to render assistance in hazardous cases of labour; but it has universally happened that whenever these calls have been to the house of a pauper, the parish authorities have refused payment on a bill being presented; I therefore hope the Board will take such occurrences into their consideration, and sanction the payment of a sufficient remuneration whenever a consultation may be deemed necessary; and I must further observe, that in the most urgent cases, particularly difficult labours, no time can be spared for getting an order from a guardian, or relieving officer, who may, very probably, be miles distant, and if on the spot, could not be considered competent to form an opinion. I would also have the Board fully to understand, that the surgeon desirous of a consultation is by no means to be considered incompetent for the discharge of his duties. It is frequently a great comfort and satisfaction, even to the most eminent in our profession, to be relieved from the sole responsibility in a dangerous or doubtful case. Not only in our profession, but in the law, how often do the most learned individuals abstain from giving a decided opinion, and refer the case to the consideration of the twelve judges?—I am, sir,

Your obedient servant,
G. Harvey, Surgeon.

The foregoing letter having been presented to the Board of Guardians, was by them forwarded to the Poor-law Commissioners, in London; and I have this day (June 18th) received the following reply:—

Halsted Union, June 17, 1836.

Gentlemen,—I am directed, by the Board of Guardians, to acquaint you that the Poor-law Commissioners for England and Wales have confirmed the resolution of the Board, in declining to sanction the charges of medical officers for attending a consultation and giving assistance in cases of operations performed on patients residing out of their districts.

That although the necessity, in every difficult case, of consulting another physician, might render it doubtful whether the medical officer appointed was competent to the discharge of the duties required, it could not justify so expensive a practice as that of having recourse to a consultation in every case of difficulty that may occur.—I am, gentlemen,

Your obedient servant,
O. Hustler, Clerk.

To Messrs. Seymour and Harvey, Surgeons, Castle Hedingham.

I shall only make two or three short remarks on this official document, in order that the public may not be misled.

In the first place, the Commissioners object to pay a medical officer for attending a patient residing out of his district. In the present case, the patient resided in the second division of the Halsted Union, consequently within the district. Secondly, an objection is made to consulting a physician. I am not a physician, neither is my colleague, Mr. Seymour; but we are both of us members of the Royal College of Surgeons in London; and I will add, for the information of the Poor-Law Commissioners, that the case in question was a surgical case, or one demanding a surgical operation. The next thing alluded to is the expense. Now, sir, the wonderfully great charge, in this instance, for attending and assisting in a delicate operation, was—Two Guineas! But I suppose, in this age of Penny Cyclopædias and Penny Magazines, we are to have Penny Surgeons. Rest assured I will not be one of them.

Having stated the facts, I shall trouble you with no further observations, but leave the public to form their own opinions.

G. H.

MEMORIAL TO LORD JOHN RUSSELL,

FROM THE MEDICAL ASSOCIATION OF DORSETSHIRE.

To the Editor of the Medical Gazette.

SIR,

I WILL thank you to insert a copy of the following memorial in an early number of the GAZETTE.—I remain,

Yours very truly,
JOHN REYNOLDS ROWE,
Secretary to the Medical Association of Dorsetshire.

Wimborne, June 18th, 1836.

To the Right Honourable Lord John Russell, Secretary of State for the Home Department.

The Memorial of the Members of the Medical Association of Dorsetshire,

Most respectfully sheweth,

1st, That we deprecate the attack on the character of the medical practitioners of England and Wales, contained in the 25th section of the first Annual Report of the Poor-Law Commissioners, and particularly the allegation of their collusion with the overseers, for the purpose of exorbitant charges, as having been founded on partial evidence, nor can we too strongly express our indignation, that the reprehensible conduct of a few of its members should be made the occasion of so sweeping and undeserved a charge against a profession, distinguished for its humane exertions, and for its gratuitous services.

2d. That in consideration of the liberal and scientific education required by law of medical practitioners, and the highly important duties that devolve upon them, we denounce the application of any principles that assimilate us to the grade of tradesmen or artisans.

3d. That we consequently protest against the principle of tender for attendance on the sick poor on the following grounds:—First, because it is degrading to us as professional men; secondly, because it is injurious, inasmuch as it depreciates the value of knowledge, by indiscriminately placing the experienced and the inexperienced on the same level; thirdly, because we believe that in consequence of inadequate remuneration, the duties of medical practitioners are often imperfectly fulfilled; lastly, because in no other liberal profession is the system of tender resorted to, and we consider it unjust that it should be applied solely to the medical profession.

We, the undersigned, the committee of the above-named Association, take the liberty of most respectfully entreating your Lordship to cause this important subject to be duly considered, so that a remuneration for such important services may be fixed on just and equitable principles.

[Signatures of the committee.]

Wimborne, Dorsetshire,
June 15, 1836.

EFFECTS OF COLD.

WE had seen the thermometer at 70° below zero, at which time the aurora was bright. We now made a few experiments on the effect and intensity of the cold, the results of which were as follow:—With the thermometer at 62 minus, a square six-inch bottle of sulphuric æther, with ground stopper, was taken out of the medicine-chest exactly in the same state as it had been packed at Apothecaries' Hall, viz. with the stopper down, and exposed immediately below the registering thermometer on the snow. In fifteen minutes the entire upper surface of the sides of the bottle was coated with ice, and a thick efflorescent sediment covered the bottom, while the æther generally appeared viscous and opaque. After having remained an hour, during which the temperature rose to 60 minus, it had scarcely

changed, or perhaps, as Mr. King agreed with me (Capt. Back) in thinking, it was more opaque. The bottle was then carefully brought into the house and placed on a table within $4\frac{1}{2}$ feet of the fire; and though so near, and with a temperature of 32° plus, it did not recover its former clearness or purity for 42 minutes. A bottle of nitric æther, similar in dimensions to the sulphuric, was not changed in the same time; but after two hours' exposure it also became viscid, the temperature in the meantime having varied from 60 to 56 minus. A fluid drachm and a half of sulphuric æther was put into an ounce-and-half bottle, with a glass stopper, and when it had become viscous, the stopper was withdrawn, and a lighted paper applied to the mouth, when it ignited with an explosion, and an escape of gas. On repeating the experiment, the ignition did not take place till the light was brought into contact with the liquid; but it was accompanied by a similar explosion.

A small bottle of pyroligneous acid froze in less than 30 minutes at a temperature of 57° minus, as did also the same quantity of one part of rectified spirit, and two of water, one part of the same, and one of water. Leeward Island rum became thick in a few minutes, but did not freeze.

A mixture of two parts pure spirit and one part water, froze into ice in three hours, with a temperature from 65 to 61° minus. Another mixture of four parts spirit and one part water, became viscid in the same time.

A bottle of nitric æther having been out all night, was thick, and the bubbles of air rose slowly and with difficulty; the mean temperature, at 6 A.M., January 17th, being 70 min.

A surface of four inches of mercury, exposed in a common saucer, became solid in two hours, with a temperature of 57° minus.

On the 4th of February the temperature was 60° minus, and there being at the same time a fresh breeze, was nearly insupportable. Such, indeed, was the abstraction of heat, that, with eight large logs of dry wood in the fire-place of a small room, I could not get the thermometer higher than 12° minus. Ink and paint froze. I made an attempt to finish a sketch, by placing the table as near the fire as I could bear the heat, but a scratchy mark and small shining particles at the point of the sable, convinced me that it was useless. The sextant cases and boxes of seasoned wood, principally fir, all split. Nor was the sensation particularly agreeable to our persons: the skin of the hands especially became dry, cracked, and opened into unsightly and smarting gashes, which we were obliged to anoint with grease. On one occasion, after washing my face within three feet of the fire, my hair was actually clotted with ice before I could dry it.—*From Capt. Back's Artic Expedition.*

MEDICO-LEGAL DISINTERMENT IN INDIA;

TO PROCURE EVIDENCE OF AN ALLEGED MURDER.

The trial of Mr. Betts, on the 20th and 21st December last, upon a charge of murder, excited a great deal of interest, not merely on account of obvious circumstances, but of its including certain points of considerable importance in a medico-legal point of view. The evidence was of a two-fold character,—that which preceded death, and that which followed it. Respecting the former, we are not called upon to offer any remarks. Suffice it, that there was great discrepancy, and even contrariety of evidence, upon leading circumstances. It was shown that the deceased, Meer Khan, or Meah Khan, had received a beating at the hands of the accused; but it was not made out, nor, properly speaking, even attempted to be proved, that the man came by his death in consequence of the beating. There was no effusion of blood—there were no marks of violence of any kind upon the body referred to, before or after death, unless, indeed, we except a burning of the skin of the legs deponed to, as having been produced by burnt paper or straw, but the evidence respecting which was anything but coherent and conclusive. Be that as it may, however, there was not a trace of evidence to prove that this alleged burning was the cause of the man's death. Two of the men who carried the body to be buried at midnight testified to marks of burning, but contradicted each other respecting the appearance of the legs; one (Haroo) swearing that they were covered with plaster, or laid over with plaintain leaves; and another (Anud) that the wounds and burns were not covered with any thing. The latter, when asked how he knew that the legs were burnt, (a question to be asked of a sharp eyed witness who sees so distinctly in the darkness of midnight, by flashes of lightning,) replied that they were *white*. This whiteness he again accounted for by saying that *butter* had been applied to the part.

The question for the jury was, did Meah Khan die of the beating? This the evidence, conflicting and * shifting as it

* Some of the witnesses, it would appear, testified one thing before the magistrate, and another before the Supreme Court.

was, failed utterly to prove as respected the train of appearances before death. The next question was, as the evidence of those who saw Meah Khan alive is no conclusive as to the cause of death—did the inspection of the remains throw any light on the subject? The value of the medical portion of post-mortem testimony, depended upon the possibility of proving whether or not a quantity of human bones, produced, belonged to the deceased. How were the bones found? Three months after the burial, Haroo senior, (one of the funeral party,) after some search, found out the grave, or the supposed grave, on the verge of the bank of the river Damoodah. The body, it seems, had been buried pretty deep in the sand, above the common water-mark, at the distance of sixty or eighty yards from the proper bed of the river, at a place which the waters had never reached, or could only reach on extraordinary occasions. The bones were uncovered, but not removed until five days afterwards. It was not, as well as we can recollect, clearly made out whether other bodies ever were interred in that spot. Indeed, we do not think that the grave was at all properly identified as Meah Khan's. The evidence of the medical gentleman, Mr. Cheek, completely proves at any rate that the bones found were *not* those of Meah Khan. This gentleman, who is surgeon to the civil station of Bancoorah, (in which zilla the alleged crime was committed) stated that twelve of the vertebræ, six of the ribs, and the sacrum, were wanting That the whole of the bones found were clean, and free from periosteum, ligaments, and cartilage; that one rib was broken and had apparently an osseous callus formed upon, and around the fractured ends. Mr. Cheek's evidence throughout, was clear, consistent, and convincing. He gave it as his opinion, that the fracture must have occurred several days, at least seven or eight, before death; never heard of an instance of bones being cleared of soft parts and ligaments by natural decomposition in three months;—would not expect the cartilages and ligaments to be separated within the year;—considered it extremely improbable that these were the bones of Meah Khan, or of a person who died in June last.

From the evidence, several considerations suggest themselves. The indentity of all the bones as those of one individual; the age of the individual; the nature of the bony excrescence, or callus, found on the broken rib; the time necessary for the formation of callus at all; the period that must elapse before the total spontaneous decay of the soft parts, consisting of muscles, tendons, cartilages, or gristles, viscera, and ligaments, or elastic strong membranes and bands connecting and binding bones together; and, lastly, the probability of the separation of the sacrum from the ilium, or hip bone, in a man of fifty or sixty. The question of the identity of all the bones as those of one individual, was not even gone into. Mr. Cheek gave it as his opinion that they were the bones of a male subject. He could not be certain, he said, as the os sacrum, or that bone which closes the pelvic circle behind, and forms the basis of the spinal column, was wanting. No opinion was asked, or given, as to the supposed age of the person to whom the bones belonged. Only one bone was produced in court—viz. the broken rib. The nature of the bony growth, or callus, round the fractured ends of this rib, had not been chemically ascertained: the probability is that it was genuine callus. On the subject of the formation of callus, we know no work that gives a clearer account than the excellent one of that very able and scientific surgeon, Mr. J. Amesbury, on the Nature and Treatment of Fractures. "We know," he observes, "that the bone is a well organized part of the body, possessing nerves, arteries, veins, and absorbents. We know that it is originally a secretion derived from the blood, and that it is deposited by arteries, or by a peculiar apparatus formed of arteries; and that callus is nothing more than a regeneration of bone, made and deposited by arteries, or an apparatus formed of arteries, in the same way as that which forms the original bone." There is found around the ends of fractured bones what Mr. Amesbury calls the provisional tumor forming a gland-like mass for the purpose of generating and pouring out callus. We would fain go further into the subject, but are deterred by want of space. It is not till the sixth day that ossification may be said to commence. The general mass of the provisional tumor is cartilaginous, with specks of bony matter interspersed. From the 8th to the 12th day, ossification still further advances, but as yet the callus is far from being a homogeneous bony concretion or union. It is clearly impossible, then, if the rib belonged to Meah Khan, that it could have been broken in the course of the beating; the fracture, supposing it to be his, must have taken place ten days or a fortnight previous to that beating. The period that must elapse before the total spontaneous decay of a human body in a grave, so that nothing shall remain but the bare bones, must take up years, even in this climate. Mr. Ravenscroft's case (a most lamentable one) was alluded to. That unfortunate person was murdered some nine years ago, in Oude; and doubts having been *charitably* circulated of the

truth of that circumstance, government ordered the grave to be opened, that the matter might be placed beyond dispute. The body accordingly was examined three or four months after the burial, and was recognized to be that of Mr. Ravenscroft. It presented, of course, a revolting spectacle, but the soft parts were still there, and this we know from having conversed, shortly after the event, with one of the members of the committee ordered upon the melancholy inquisition. More on the subject of the spontaneous decomposition of the soft parts anon. We now come to the last proposed point of inquiry—the separation of the sacrum from the other pelvic bones. The connexion between the bones mentioned is, perhaps, the strongest in the human body. The ilia or hip bones, on each side of the sacrum or rump bone, are articulated or joined to the sacrum by what is technically called the sacro-iliac symphysis. This joining is formed by a layer of dense cartilage being placed between the sacrum and the ilium, forming a junction of very great strength, which is still further knit together by a certain set of powerful ligaments. So strong, indeed, is the union between the sacrum and hip bones, that they cannot be separated even in the young subject, without immense violence; whilst in the old—say a man of 50 or 60—it generally becomes more or less anchylosed or stiffened by bony union. From all that has been stated, then, it is as clear as any logical inference can be, that the bones in question were not, and could not be, those of a man who had died three months previously, and, consequently, not the bones of Meah Khan.—*India Journal of Medical Science*, Feb. 1834.

MINERAL AND VEGETABLE MATERIA MEDICA.

Remarks by Lord Stanhope.

Amongst the chemical preparations that have attained great celebrity is calomel, a medicine which enfeebles all the vital powers, and which may, from that circumstance, derive its efficacy in subduing active inflammation; but its operation is eminently injurious, and it cannot be sufficiently deplored that it should be rashly and ignorantly employed as a domestic remedy, and even as an ordinary aperient, instead of being reserved solely for those disorders which might seem to require it, under the advice, and by the authority of a medical practitioner. As it is frequently thus misapplied, and as fashion, which is so often synonymous with folly, has promoted its use even in the tender age of infancy, we cannot be surprised that nervous disorders are common, that bodily vigour and mental energy are impaired, and that cases of insanity have become more numerous. An eminent physician, whose experience in such cases was very extensive, and whose opinions were founded upon accurate observations, assured me that insanity had, in many instances, arisen from the injudicious employment of calomel; and such must naturally be the result, when both the mind and the body are debilitated by factitious means, when the infirmities of old age are prematurely produced, when life becomes languid, and the power no longer exists of enjoying the gifts of Providence, and of sustaining with composure the cares and vexations of our earthly pilgrimage. Under such circumstances an infirmity may become intolerable, and the mental faculties may be disturbed, if not destroyed; but even when such lamentable consequences do not ensue, a shattered constitution, a sort of nominal existence in a melancholy and miserable state of dejection and debility, with enfeebled nerves and almost exhausted powers, may be more afflicting to the patient than a chronical disorder. It will be said, and I am ready to admit, that a mercurial preparation has not, in an equal quantity, the same action on different individuals, and that some persons are more susceptible than others to its injurious effects; but this circumstance furnishes an additional argument against the unnecessary administration of such a remedy, since its power, in any particular case, can be learned only from experience, and is sometimes found to be greater than was expected or wished by the physician. So extensive is the misuse of mercurial preparations, and so injurious are their ultimate operation, that it has been most properly determined, by the Council of this Society, to offer a gold medal for the best Essay on the question, "*What is the vegetable substance which could be employed with success as a Substitute for Mercury in the cure of Syphilis, or of diseases of the Liver?*" It would be of extreme importance if effectual substitutes could be discovered for those medicines, which, from their potency, may be dangerous, if not fatal, when they are misapplied, and which, even when they remove a disorder, may produce permanent injury to the patient. That such substitutes may be found in some disorders, was shewn in a case which came under my personal observation, of a lady to whom I was related, and who had been accustomed, for the purpose of allaying the pain arising from an internal complaint, to take opium, of which the dose was gradually increased

till it amounted to a considerable quantity; but it was at last discovered, though it was then too late to remedy the evils which had been thus occasioned, that the same relief was experienced from drinking soda water. Nothing would more contribute to the advancement of medical science, to the honour of the medical profession, and to the benefit of patients, than the cure, by safe and simple means, of difficult or dangerous diseases, instead of employing, as is too frequently done, and even in cases of a different description, substances which are poisonous, and therefore powerful, but pernicious.

It is well known that in some instances drugs which are vended under the same name, and might be supposed to be similar in their effects, are so different in their qualities and powers, that the administration of them is attended with much uncertainty, and therefore with considerable danger. The same prescription may, in cases exactly similar, produce, from the dissimilarity in the properties of the drug that is employed, either the cure or the fatal termination of the malady, and the accurate discrimination of the drugs which are genuine from those which are of inferior quality is of the utmost importance to those by whom they are compounded, as well as to those by whom they are administered. I speak from very high authority when I state, that of some drugs which are vended in this country, only four parts in a hundred are of the best quality, and are consequently possessed of their full efficacy, while the other ninety-six parts contain in some instances only one half the quantity of the active principles which ought to belong to them. I am assured that of the colocynth imported into this country, only one hundredth part is of the best quality, that there is of scammony, of the Peruvian bark, and of rhubarb, only a very small proportion, but that there is of ipecacuanha and of sarsaparilla a larger proportion, and a larger still of jalap, and all of these are, I need not say, very important medicines which are frequently administered. If all of them were of an inferior quality, they would of course be far less efficacious, but there would not be the same difficulty and danger in employing them, as is now experienced from the inequality in their power, and consequently from the uncertainty in their operation. The great difference of price between those of the best and those of an inferior quality offers a strong inducement to use the latter, and it would be an inestimable advantage to the art of medicine, if satisfactory substitutes for them could be discovered amongst the plants which are indigenous to this country. The admirable paper of Dr. Rousseau, which I before mentioned, proves incontestably that in the cure of intermittent fevers, holly is preferable to Peruvian bark; there is reason to believe that rhubarb of a good quality could be produced in this country, and that elm bark may supply the place of sarsaparilla; and it deserves further inquiry, whether the juice of the EUPHORBIA *Cyparissias* could not be used instead of scammony, and the seeds of the ATRIPLEX *angustifolia* instead of ipecacuanha.—*Address, delivered at the Anniversary Meeting of the Medico-Botanical Society, May*, 1836.

LITERARY ANNOUNCEMENT.

Practical Observations on the Use of Mercury in Venereal and other Diseases. By A. Colles, M.D., Surgeon to Steevens' Hospital, and Professor of Surgery to the Royal College of Surgeons in Dublin. (*To be published in October.*)

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *June* 21, 1836.

Abscess	1	Hæmorrhage	1
Age and Debility	30	Heart, diseased	1
Apoplexy	5	Hooping Cough	3
Asthma	7	Inflammation	12
Cancer	4	Brain	7
Childbirth	2	Lungs and Pleura	3
Consumption	37	Liver, diseased	4
Convulsions	26	Measles	5
Croup	1	Mortification	3
Dentition or Teething	10	Paralysis	4
Dropsy	8	Rheumatism	1
Dropsy on the Brain	6	Small-pox	9
Dropsy on the Chest	3	Stone & Gravel	1
Epilepsy	1	Thrush	1
Erysipelas	1	Unknown Causes	23
Fever	4		
Fever, Scarlet	3	Casualties	3

Decrease of Burials, as compared with the preceding week . . 132

METEOROLOGICAL JOURNAL.

June, 1836.	THERMOMETER.		BAROMETER.	
Thursday . 16	from 56	to 72	29·85	to 29·84
Friday . . 17	59	74	29·85	29 78
Saturday . 18	47	67	29 74	29 56
Sunday . . 19	48	65	29·56	29·75
Monday . . 20	47	63	29 90	29 92
Tuesday . . 21	47	65	29 93	29 90
Wednesday 22	52	62	29 86	29·76

Prevailing winds, W. by S. and W. by N. Except the 18th, and mornings of the 20th and 21st, generally cloudy, with frequent showers of rain: a violent storm of thunder and lightning, accompanied with heavy rain, from 4 to 5 on the afternoon of the 19th.

Rain fallen, ·55 of an inch.

CHARLES HENRY ADAMS.

NOTICES.

The communication of M. CIVIALE has reached us, and shall have a place in our next number.

Dr. A. BUCHANAN's paper has also been received.

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THE

LONDON MEDICAL GAZETTE,

BEING A

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OF

Medicine and the Collateral Sciences.

SATURDAY, JULY 2, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XL.

OF mineral substances there yet remains for our examination one only—namely,

ARGENTUM, OR SILVER;

A metal which, like gold, has been known from the most remote periods of antiquity: and the only pharmacological preparation of which is

Nitrate of Silver.

History and synonymes.—Geber describes the method of preparing crystallized nitrate of silver. In the fused state, in which we meet with it in commerce, it is called *Lunar caustic*, or *Lapis infernalis.*

Preparation.—It is prepared by dissolving silver in nitric acid diluted with water. The solution is to be evaporated to dryness, and the residuum melted to expel any water, and then poured into moulds.

Theory.—Three atoms of silver abstract three of oxygen from one of nitric acid; forming three atoms of the oxide of silver, while one of the binoxide of nitrogen is evolved. The oxide of silver, with three atoms of nitric acid, form three of the nitrate of silver.

Re-agents.	Results.
$4\ \overset{.....}{N}$	$\ddot{N}$
$3\ Ag$	$3\,(\dot{Ag}\ \overset{.....}{N})$

Properties.—Nitrate of silver is crystallizable; the primary form of its crystals being the right rhombic prism. Its taste is strongly metallic and bitter; when heated, it readily fuses, and afterwards decomposes, the nitric acid and oxygen being expelled and metallic silver remaining. The same changes are produced by light merely. It dissolves in both water and spirit.

Composition.—It is composed of

1 atom oxide of silver	118
1 atom nitric acid	54
	172

Its formula is $\dot{Ag}\ \overset{.....}{N}$

Characteristics.—It is recognized thus:—Muriatic acid, or a soluble chloride, added to a solution of this salt, throws down a white precipitate (chloride of silver), which is soluble in ammonia, but insoluble in nitric acid. By exposure to light, more especially to the violet rays of the solar spectrum, this chloride is blackened, according to Wetzler, in consequence of the evolution of a little chlorine and the formation of a subchloride.

That this salt is a nitrate is shown by its deflagration when heated on charcoal, and by the evolution of nitrous fumes.

Physiological effects.—The local action of nitrate of silver is that of a caustic, or corrosive. This might be expected, from observing the action of this salt on albumen and fibrin; substances which form the principal part of the animal textures. Its action is much less energetic than the mineral acids, or the alkalies.

Applied to the skin, it produces a white mark, which, by exposure to solar light, becomes first bluish grey and ultimately black. The same effect is produced on the nails and hair; and hence it is one of the substances used as a hair-dye. It is probable that in these cases the black colour depends on the separation of the oxide of

silver from the nitric acid, and its union with the constituents of the tissue. As it produces the same black colour when applied to vegetable textures, it is employed as a permanent ink. When its application to the integument is continued for some time, it destroys, not merely the cuticle with which it is in contact, but the subjacent parts also; though it is much less energetic in its action than some other caustics—potassa fusa, for example. Its corrosive influence depends principally on the oxidizing influence of the nitric acid which it contains. The eschar produced usually separates without any very active inflammation. When applied to an ulcer it produces white marks, owing to its action on the albumen of the secretion, and also to its decomposition by the chlorides present. Applied to the tissues, in the form of a strong solution, it acts as an irritant, and produces local inflammation. In a more dilute form it acts principally as an astringent, causing condensation of the cellular tissue, and contraction of the capillary vessels. These effects are principally observed when it is applied to mucous surfaces.

We may exhibit much larger doses without inconveniencing the stomach, in the form of pill, than in that of solution. Thus Dr. Powell tells us, that in some cases he has exhibited 15 grains at a dose, in the form of pills, while he rarely found stomachs that could bear more than five grains in solution. If cautiously given, it may be continued for some time, and its dose gradually increased without any obvious effects on the corporeal functions being observed, although it may be exerting a beneficial influence over the disease for which it is administered—epilepsy, for example. When taken in too large a dose, it excites gastrodynia, sometimes nausea and vomiting, and occasionally purging. So far, therefore, we have no insight into the nature of the action which it exerts over the constitution generally. But the influence it occasionally exerts over certain nervous diseases leads us to suspect, that the nitrate silver has a specific though not very obvious action on the nervous system. Orfila infers from his experiments, that when a very small quantity of nitrate of silver is introduced into the circulation it destroys life by acting upon the lungs and on the nervous system. That the silver becomes absorbed, is proved by the case mentioned by Wedemeyer, of an epileptic patient who took for 6 months this salt, and became blue. He afterwards died of dropsy and diseased liver; and on a post-mortem examination, all the internal organs were found more or less blue, and in the pancreas and choroid flexuses was discovered metallic silver.

The blueness or slate-colour of the skin above alluded to, has been produced in several patients who have continued the use of the nitrate of silver for a long period of time, (as several months). That it depends on the presence of silver in the skin is shown by the experiments of Mr. Brande. Moreover, it seems unconnected with the influence of light, since the mucous membrane of the alimentary canal has also been found discoloured. I have met with two cases of it only: one, that of a highly respectable gentleman now residing in the city, and who took the nitrate under the advice of a physician, for epilepsy. The discoloration is so marked, that he has been obliged to give up business, since, if he went into the street, the boys gathered around him, crying out "there goes the blue man." Rayer says, that it generally fades in intensity after lasting some years; but in the case I have just noticed this has not taken place.

When taken internally in large quantities, nitrate of silver acts merely as a caustic and irritant, without appearing to exert any specific influence over distant organs.

Uses.—It has been used as an internal remedy in epilepsy, chorea, and angina pectoris. In the first of these diseases, Drs. Sims, Powell, and others, have borne testimony to its occasional success: but the pathology and causes of epilepsy are so obscure, that we know not what are the cases best adapted to this or to other modes of treatment. When this salt, therefore, is employed, it is completely on empirical grounds. In the few cases in which I have seen it tried, no benefit was gained; and I know this to be the experience of many others. So that I think the slender chances of success hardly warrant our incurring the risk of tinging the skin.

It is very frequently employed as a *caustic*, and, as such, has some advantages over the potassa fusa. Thus it does not liquefy by its application, and hence its action may be confined to the parts with which it is placed in contact. It is used to remove and repress spongy granulations in wounds and ulcers, and to destroy warts, whether venereal or otherwise. It is applied to chancres on their first appearance, with the view of destroying the venereal poison, and thereby of stopping its absorption, and preventing bubo or secondary symptoms. This practice has the sanction of Mr. Hunter, but I have several times seen it fail, perhaps because the caustic was not applied sufficiently early. The nitrate should be scraped to a point, and applied to every part of the chancre. It is used also in various affections of the eye: thus, to

cauterise ulcers either of the cornea, or of the edges of the eyelids; in prolapsus of the iris. We frequently use it as a stimulant to old indolent ulcers, particularly those of a fistulous or callous kind. I have on many occasions used it with the greatest success in porrigo; but when the disease is extensive, a part only of the head should be cauterised at a time, for I have seen fever and delirium brought on by neglecting this caution. It is to be rubbed in the solid state into the affected part. I have never seen the practice fail, or cause the loss of hair. It is sometimes employed to stop the progress of irritative or erysipelatous inflammation, more particularly in the extremities. Thus, if the arm be the seat of the disease, the caustic is applied, in a circular form, around the arm, at a little distance; but I have several times seen the inflammation extend beyond the cauterised part. It has been proposed to cauterise small-pox pustules, both with the view of preventing pitting, and to diminish the constitutional irritation. In strictures of the urethra and œsophagus, it is frequently applied at the end of the bougie (constituting the so-called *caustic* or *armed bougie*), with great advantage. In the form of ointment, it has been employed in various ophthalmic diseases, and also in gonorrhœa. Thus I have known a bougie smeared with this ointment introduced into the urethra, in the latter disease, during the acute stage, with the best effects, in numerous cases; but in one instance I saw acute urethritis brought on.

A strong solution has been employed by Dr. Jewell, with success, as an injection in leucorrhœa. In various chronic skin diseases (as lepra, psoriasis, porrigo, impetigo, &c.), washes containing this salt in solution are useful.

Administration. — Internally, it is generally used in the form of pill, in doses of a sixth or a quarter of a grain, gradually increased; and after continuing it for a few weeks, we ought to intermit its employment, with the view of guarding against the discoloration of the skin. As chloride of sodium decomposes and renders it inert, we should cautiously abstain from using either it or salted foods immediately before or after taking the nitrate.

Antidote. — In cases of poisoning by nitrate of silver, the antidote is a solution of common salt, which decomposes the nitrate, and converts it into the insoluble chloride of silver, which, according to the experiments of Orfila, is inert. The contents of the stomach should be evacuated, and the inflammatory symptoms combated by the usual means.

VEGETABLE MATERIA MEDICA*.

DIVISION I. FLOWERLESS PLANTS.

General remarks.—The *chemical elements* of flowering and of flowerless plants are probably the same. Bromine, however, has hitherto been found only in the latter, and iodine has been discovered in but one flowering plant, namely, the Zostera marina. Nitrogen is a very abundant substance in Fungi.

The *organic elements* (commonly termed the *proximate principles*) of vegetables, offer some peculiarities. The following substances have hitherto been discovered in flowerless plants only; lichenic, rocellic, fungic, and boletic (I omit filicic) acids; and fungine. Vegetable alkalies have not yet been discovered in the plants of this division (*Amanitin* and *Filicina* are doubtful exceptions to this statement): and volatile oils have been found only in the higher tribes; Filicales, for example.

The *organized elements*, or *elementary organs*, are both the cellular and vascular tissues, though the latter is found only in the higher orders, and a few years since was supposed to be peculiar to flowering plants: hence the term *cellulares* was at one time applied to the plants here named flowerless, and the word *vasculares* to those called flowering; but the subsequent discovery of spiral vessels in some of the so-called cellular plants, and the absence of them in some flowering plants, led botanists for the most part to discard these terms.

The *compound organs* still more strikingly distinguish the plants of this division from those called flowering. The cuticle is mostly destitute of stomata. The sexual organs, which constitute the flowers, are absent; and hence the origin of the terms *asexual*, *flowerless*, and *agamæ* (from α, *not*, γαμος, *marriage*), which have been applied to them. Some botanists, however, desirous of asserting less positively the absence of sexes, have denominated them *cryptogamic* (from κρυπτος, *concealed*, and γαμος), or *ætheogamous* (from αηθης, *unusual*, and γαμος.) The reproductive particles of these plants not being the result of fecundation, cannot be properly termed seeds, since they are more of the nature of bulbilli; they are, therefore, denominated *spores*, *sporules*, or sometimes *gongyli*. Moreover, the vessel that contains them cannot be termed a pericarp, and is therefore called a *case*, or *theca*, or *sporangium*; sometimes an *apothecion*. In consequence of the

* With the view of economizing our space as much as possible, we have been obliged to omit the lecture on the distinctions between animals and vegetables; and also that on botanical classification.

spores being destitute of embryons, and consequently of cotyledons, these plants have been denominated *exembryonatæ*, or *acotyledones*.

The *physiology* of flowerless plants presents some peculiarities. Thus the stem either increases "by an extension of its point, or by a regular or irregular development in all directions from one common point; not increasing perceptibly in thickness or density when once formed." Hence the term *acrogens* (from ακρον, *a point*, and γενναω, *to produce*), which has been applied to them. Moreover, reproduction takes place independent of fecundation, and germination occurs "at no fixed point, but upon any part of the surface of the spores."

With respect to the *medicinal properties*, the plants of this division offer little uniformity,—a circumstance to be expected, when we take into account the great differences which we observe in their structure and external form. Some of them are very poisonous (this is particularly observed in Fungi); others are nearly inert. On the whole, however, they yield us very few remedial agents, iodine and ergot of rye (if the latter depend on a fungus, which is much to be doubted) being the only remedies of any great value obtained from them.

ALGÆ, OR ALGACEÆ.

Characters.—The *sea weeds*, as the Algæ are usually termed, are flowerless, cellular, leafless, aquatic plants, without any distinct axis of vegetation, and whose surface has no stomata. They consist of simple vesicles lying in mucus, or of articulated filaments, or of lobed foliaceous expansions, called fronds, and which consist of one kind of cellular tissue. The reproductive organs are either altogether wanting or are contained in the joints of the filaments, or are deposited in thecæ, whose form, size, and position, vary, and which consist of an expansion of the substance of the frond. The sporules have no proper integument, and, in germination, elongate in two opposite directions. Algæ vary considerably in size; some being so small as to require a microscope for their examination, others being many hundred feet long.

Divisions.—Dr. Greville has arranged the Algæ in twenty-seven sections. Of these, two only contain plants requiring to be noticed here—namely, Fucoideæ, in which is the Fucus vesiculosus, and Florideæ, which contains Sphærococcus and Chondrus.

Chemical constituents.—The most important constituents of this family, in a pharmacological point of view, are iodine and soda, obtained from the marine Algæ, and which I have already noticed in another part of the course *. Organic principles, of a nutritive kind, are found in abundance; thus sugar, mucilage, gum, cerasine, fatty and gelatinous matters, &c. Colouring matter is obtained from some species, and was formerly employed as a cosmetic: indeed, this is supposed to be the origin of the word fucus, or φυκος, from the Hebrew *fuka*, signifying antimony; because this substance was also used in painting the cheeks.

Medicinal properties.—Decandolle has remarked that no Algæ are poisonous, or even suspicious. Many of them, indeed, are used as articles of food; but I shall only name the sections Fucoideæ and Ulvaceæ, as examples, and refer to Dr. Greville's *Algæ Britannicæ* for further illustrations. The medicinal effects of some of the species is supposed to depend on the contained iodine. Several are reputed anthelmintics.

1. *Fucus vesiculosus.*

The *bladder Fucus* is the *common Sea Ware*, or *Sea Wrack* (*Quercus marinus*), of the English; the *Kelp Ware* and *Black Tang* of the Scots; and the *Swintang* or *Swine-tang* of the Goths. Pliny mentions *Fucus marinus* as a remedy for the gout and other diseases of the joints.

Characters.—This species of Fucus is usually of a dark olive green colour. The frond is flat, furnished with a midrib, repeatedly dichotomous, and entire at the margin. The air vessels are roundish, oval, usually in pairs, one on either side of the midrib, with an odd one in the axilla of the division. The receptacles, which are at the end of the frond, are compressed, and of an elliptical form, and present on their surface little round pores, beneath each of which is found, at the period of fructification, a globule composed of filaments and of little ovoid bodies, which Greville calls seeds (*i. e.* sporules), but which, according to Decandolle, are sporangia. The latter writer states he has seen them open and emit mucus and small particles, which he regards as the true sporules. Little tufts of white filaments (which Reaumur regarded as stamina) issue from minute pores on the surface of the frond. The odour is strong and disagreeable, being somewhat analogous to iodine: the taste is saline and nauseous.

Geography.—It is found abundantly in all European seas.

Chemical constituents.—Three analyses

* MEDICAL GAZETTE, vol. xvii. p. 833; and vol. xviii. p. 87.

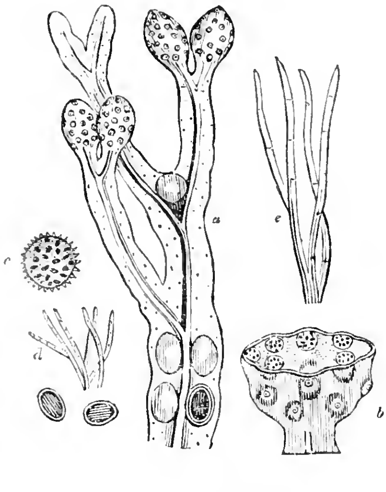

Fig. 99.—*Fucus vesiculosus.*

(*a*) Upper part of the frond.
(*b*) Section of a receptacle.
(*c*) One of the globules of seeds and filaments removed from the receptacle.
(*d*) The filaments and ovoid bodies (sporules or sporangia) of which the globules are composed.
(*e*) Filaments which issue from the pores on the surface of the frond.

have been published, but their results do not accord. Gauthier Claubry states he found mannite, albumen, green colouring matter, and various salts (namely, oxalate, malate, sulphates, chlorides, iodide, hyposulphite, and carbonates of potash, soda, and magnesia). Tilesius says, that when the air vessels have internally a violet metallic brilliancy, they contain an unusual quantity of iodine. It is not improbable that bromine may exist in this plant.

By combustion, an ash is obtained, called *kelp;* which I have before noticed. When incinerated in a covered crucible, this plant forms *Æthiops vegetabilis.*

Physiological properties.—I am not acquainted with any alteration of functions produced by the use of Fucus vesiculosus. It is probable, however, that its long continued employment might give rise to the effects already ascribed to the continued use of small doses of iodine, which is its active ingredient. Dr. Greville tells us, that, "in some of the Scottish islands, horses, cattle, and sheep, feed principally upon Fucus vesiculosus, during the winter month, and in Gothland it is commonly given to pigs."

Uses.—It has been employed as a local and constitutional agent. Dr. Russell recommended scrofulous swellings to be rubbed with the bruised vesicles, and afterwards to be washed with sea water, in order to produce the resolution and disappearance of the swellings. Æthiops vegetabilis was formerly used internally, as a deobstruent, in bronchocele and scrofulous swellings; and, until the discovery of iodine, its efficacy was referred to the carbonate of soda contained therein.

2. *Chondrus crispus.*

This plant, also called *Fucus crispus,* is sold in the shops under the name of *Carrageen* or *Irish moss.*

Characters.—Its colour is purplish brown, often tinged with red, paler at the summit, becoming greenish, and at length white, in decay. When dry it is darker, and almost horny. The frond is flat, cartilaginous, without a midrib, dichotomous, with linear wedge-shaped segments. The sporules are contained in sub-hemispherical capsules, which are imbedded in the disk of the frond.

A calcareous meshy crust, consisting of various species of Flustra, of the class Polypiphera, is frequently found on the thallus.

Chemical constituents.—No regular analysis of this plant has yet been made. It appears, however, to contain a feculent matter, gum, a crystallizable bitter substance, and salts (as sulphate of soda and a calcareous salt, with but little chloride of sodium.) Guibourt could not detect any iodine.

Physiological effects.—It is nutrient, demulcent, and emollient. The bitter matter probably renders it slightly tonic.

Uses.—"On the southern and western coasts of Ireland," says Dr. Greville, "our own *Chondrus crispus* is converted into size, for the use of house-painters, &c.; and if I be not erroneously informed, is also considered as a culinary article, and enters into the composition of *blanc-mange,* as well as other dishes." It is used also to make jellies, white soup, &c. It is recommended as a popular remedy for pulmonary complaints, dysentery, scrofula, and rickets, given in the form of decoction, formed by boiling an ounce in a pint and a half of water or milk.

3. *Sphærococcus Helminthocortos.*

Under the name of *Corsican moss* is sold in the shops a mixture of marine animals and vegetables. The essential though usually smaller part is the plant called *Sphærococcus Helminthocortos* (also called *Gigartina Helminthocorton*). Decandolle says he found corallines, sertularias, and ceramiums, to the number of twenty species. Lamouroux states he found more than eighty species of marine plants, belonging for the most part to known genera. Fee

gives the following as the relative proportions found by him in a commercial sample:—

Sphærococcus Helminthocortos	136
Foreign Fuci and Ceramiums ..	160
Sand, debris of rocks, shells, and madrepores	72
Water	132
	500

Lucä states that in 16 ounces of Iceland moss of commerce, he found only 44 grains of the Sphærococcus Helminthocortos.

Characters.—The frond is small, filiform, and branched, "exceeding lax and cellular, with a consistence similar to that of the stems and leaf stalks of some aquatic phænogamous plants, and having the appearance of articulations, which do not exist." The lower part is of a dirty yellow colour, but the branches are more or less purple. The reproductive organs have not yet been seen. It grows on the coasts of the midland seas, especially in Corsica.

Chemical constituents.—According to Bouvier, it is composed of—

Gelatine	60·2
Chloride of sodium............	9·2
Carbonate of lime	7·5
Sulphate of lime	11·2
Vegetable fibre	11·0
Iron, magnesia, silicic acid, and phosphate of lime	1 7
	100·8

Straub has also found iodine.

Physiological effects.—The effects of Corsican moss are not very obvious, though occasionally nausea and giddiness have been said to be produced by it.

Uses.—It has been used for several centuries in Corsica as an anthelmintic, but became first known to the French in 1775, when they conquered that island. It may be given in the form of powder, in doses of a scruple or half a drachm; or in infusion or decoction in much larger doses (half an ounce, for example.) Some ascribe its vermifuge properties to the saline ingredients contained in it. It has been supposed particularly efficacious against the large round worm (*ascaris lumbricoides.*)

In 1822, Mr. Farr published a work on the use of Corsican moss in cancer. The first idea of its employment in this disease seems to have arisen from Napoleon Buonaparte, who, when at St. Helena, expressed his surprise to Barry O'Meara that medical men had not hitherto administered it against cancer. O'Meara mentioned this to Mr Farr, who was thus led to an examination of its effects in this disease.

FUNGACEÆ, OR FUNGI.

Characters.—Fungi are aerial, flowerless, leafless plants, composed of cells, sometimes intermixed with fibres, and essentially distinguished from lichens by the absence of any evident thallus. Their surface is without stomata; they grow by additions to their inside, and when once formed, their outside undergoes no change. They are fond of damp shady places, growing on the earth, on other plants, or on decomposing vegetable and animal substances. Their existence is commonly ephemeral; they are variously coloured, though rarely green. Their sporules lie either loose among the tissue, or in membranous, woody, or fleshy cases, called sporidia. In a physiological respect, one peculiarity of the plants of this family is, their exhaling carbonic acid and hydrogen gases while exposed to light, and thereby consuming oxygen. Nees von Esenbeck and Bischoff found that one large fungus (Boletus luridus) consumed in 12 hours, 12 per cent. of oxygen gas.

Division.—Fungi vary considerably in their form, size, and structure. But the most convenient division of them is the following:—

Division 1. *Coniomycetes.*—Fungi which appear as simple articulated filaments, composed of a row of cells. In some the joints of the filaments disarticulate, each being capable of reproduction: in others, a considerable number of sporules are contained in the terminal joints, and escape by the rupture of the containing cell. This division is called Coniomycetes, from *κονίς, dust*, and *μυκης, a fungus*: it comprehends the genera Mucor, (or mouldiness) Uredo, (or brand) and many others.

Division 2. Fungi which appear as masses of cellular tissues of a determinate form, and whose middle consists of sporules. When the sporules lie naked among the filaments, the fungi are termed *Gastromycetes* (from *γαστηρ, the belly*, and *μυκης, a fungus*), as the puff balls (Bovista and Lycoperdon), Tuber, or truffle, Elaphomyces, Sclerotium, &c. When the sporules are contained in membranous tubes, (sporidia) similar to the thecæ of lichens, the fungi are termed *Pyrenomycetes*, (from *πυρην, a nucleus*, or *grain*, and *μυκης, a fungus*), as Sphæria.

Division 3. *Hymenomycetes.*—Fungi which consist of two surfaces, one even and imperforate, the other divided into plates or cells, called the hymenium, and in which the sporules are deposited. These are called the Hymenomycetes, from *υμην, a membrane*, and *μυκης, a fungus*, as the genus Agaricus. Individuals of this division have frequently somewhat the shape of an umbrella, the stick, or stalk, being called the stipes, and the cap at the top,

the pileus. In the genus Agaricus the under surface or hymenium of the pileus consists of radiating plates, called lamellæ, or gills. Many species are surrounded before their development with a perfectly closed sac, which breaks during the growth of the plant, and forms a membranous sheath, called the volva, or wrapper, around the base of the stipes. The annulus, or ring, found surrounding the stipes of some species, is only the loose torn edge of the velum, or veil, which connected the stipe to the edge of the pileus.

Chemical composition.—Our chemical information respecting the Fungi is very imperfect, and what we do know is principally owing to the labours of Braconnot and Vauquelin, who analysed no less than 17 species. But among the numerous substances which they found, only three are peculiar to this order—namely, *fungine*, and *boletic*, and *fungic* acids. Fungine may be regarded as a kind of woody fibre, obtained by extracting every thing soluble from Fungi. It contains nitrogen, and is highly nutritious. Boletic acid was obtained from Boletus pseudo-ignarius; it is crystallizable, and almost identical with lichenic acid, from which it is distinguished by the solubility of the boletates of the protoxides of iron and manganese. Fungic acid has been found in several genera, and is very analogous to malic (or according to Dumas, to lactic) acid. A large number of Fungi contain odorous matter; one of the most remarkable instances is Phallus impudicus. Many contain poisonous principles. Letellier says he obtained two; one a volatile acrid matter, to which the irritant properties of the Fungi are owing, the other a more fixed substance, forming crystallizable salts with acids, and which he calls *Amanitin*, because he discovered it in the subgenus Amanita. It is said to be the narcotic principle of some Fungi. In Polyporus officinalis the acrid matter seems to be of a resinous nature. Bitter matter is found in many Fungi, as in Agaricus amarus of Schäffer, and several of the series Cortinaria of the genus Agaricus. Of Fungi containing colouring matter I may instance the Scleroderma tinctorium of Persoon. Animal matters (as albumen, gelatine, osmazome, adipocire, &c.) are common to most Fungi. Gum, sugar, oil, and other vegetable principles, are also frequent. Phosphates have been found in several.

Effects and uses. — 1. Some Fungi are highly nutritious, and are used as articles of food. Dr. Greville has enumerated no less than 26 indigenous species, of which those in most common use are Agaricus campestris, or common mushroom used for making ketchup; the Agaricus oreades, also called the fairy-ring Agaric, Scotch bonnets, or champignons used for pickling, made dishes, &c.; the Morchella esculenta, or common morell; and Tuber cibarium, or common truffle.

2. A considerable number of Fungi are highly poisonous. The following are enumerated as such by Orfila: Amanita muscaria, bulbosa alba, citrina, and viridis; Hypophyllum maculatum, albo-citrinum, tricuspidatum, rapula, sanguinem, crux melitense, pudibundum, and pellitum; Agaricus necator, acris, piperatus, pyrogalus, stypticus, urens, and annularis. Unfortunately there are no absolute criteria for distinguishing the poisonous from esculent kinds, for the characters laid down in many works are not to be relied on. Indeed it would appear that the specific characters even are not to be depended on for this purpose, since occasionally esculent Fungi have acted as poisons, and under certain circumstances those reputed poisonous become quite inert, so that the terms esculent, or poisonous, are not invariably applicable to the same species. Various circumstances appear to modify the effects, such as age, place of growth, weather, or period of the season, mode of cooking, and idiosyncracy of the eater.

Mr. Lindley tells us, that "so strongly did the late Professor L. C. Richard feel the prudence of this," *i. e.* distrusting all Fungi except the cultivated ones, "that although no one was better acquainted with the distinctions of Fungi, he would never eat any except such as had been raised in gardens, in mushroom beds."

The symptoms produced by poisonous Fungi vary, but reduce themselves principally to those arising from gastro-intestinal irritation, and a disordered condition of the nervous system. In some cases they act as pure narcotics, occasionally as acrids merely, but more commonly as narcotico-acrids. I have already alluded to the curious effects of the Amanita muscaria in a previous part* of the course.

With respect to the treatment I have little to say, since no antidote is known. Of course the first object is to evacuate the stomach; for which purpose emetics should be resorted to. The subsequent treatment will depend on the symptoms, and must be governed by general principles.

3. Fungi were at one time used as medicinal agents, but they are now almost obsolete, though the Boletus ignarius is still retained in the Edinburgh Pharmacopœia. This fungus, known by various other names, such as Boletus chirurgorum, Agaric of the oak, or Agaricus quercinus,

* Medical Gazette, vol. xvii. p. 35.

Touchwood, Spunk, &c. has been famed as a styptic; but its action is merely mechanical, like lint, felt, and many other substances. Boletus laricis, called also Boletus purgans, was at one time used as a cathartic, but is now rarely or never resorted to.

LICHENACEÆ OF LICHENES.

General characters.—Lichens are flowerless, cellular, ærial, perennial plants, without stomata or any distinct axis of growth. They often spread over the surface of the earth, on stones, rocks, or trees, in dry places, in the form of a lobed and foliaceous, or hard crustaceous or leprous substance, called a thallus, receptaculum commune, or frons. When the thallus is dry and crustaceous, the whole of it is composed of one kind of cellular tissue, namely, the rounded (contextus vesiculosus),—the outer or cortical portion being coloured, while the internal is colourless. But in the fruticulose and foliaceous species a portion of the thallus is composed of elongated, filiform cells (contextus flocculosus): in the foliaceous species, this portion occupies the lower half of the thallus; in the fruticulose it is enclosed all around by the cortical portion. Reproduction is effected in two ways:—1, by sporules lying in membranous tubes (thecæ or sporangia) immersed in nuclei of the medullary substance, which burst through the cortical layer, and colour and harden by exposure to the air in the form of little disks, called shields, scutella, or apothecia; 2, by the separated cellules of the medullary layer of the thallus.

Chemical characters. — Odorous matters are found in some Lichens; for example, in Lecidea aromatica of Acharius, and Parmelia fragrans of Sprengel. Colouring matters are very numerous: I may instance the well-known litmus (yielded by Rocella tinctoria) as an example of a blue colour got from this family; but reds, yellows, and browns, have also been procured. Acrid matter exists in some: thus, Peltidea aphthosa is said to be purgative and anthelmintic. Bitter matter (called *Lichenic bitter*) is generally found, as in Cetraria Islandica, Cenomyce vermicularis, (used in South America as a stomachic, under the name of *Contrayerva blanca*), &c. Two peculiar acids, the lichenic and rocellic, have been discovered in this family. Of nutritive matters, the most remarkable is a particular kind of amylaceous matter (called *lichenic amidine*), a description of which will be found in the works of Raspail and Berzelius.

The *medicinal properties* of Lichens are generally of two kinds: most of these plants are nutritive, and may be employed as emollients and demulcents; and several of them are tonic and stomachics. The Cenomyce rangiferina, or rein-deer moss, is a well known example of a nutritive Lichen, supporting the animals after whom it is named, when no other sustenance can be obtained. The Cetraria Islandica is also a nutritive lichen, and will be noticed presently. Tripe de Roche is a Canadian term, applied to four or five species of Gynophora; and which are used by the hunters as articles of food: it supported Captain Sir John Franklin, and Dr. Richardson and their companions, when in America, in 1821, and in want of other aliment, for many days. But as they had not the means of extracting the bitter principle, it proved noxious to several of the party, producing severe local complaints.

FIG. 100.—*Tripe de Roche.*

Cetraria Islandica.

This plant is most frequently known by the name of *Iceland moss*, or *Lichen Islandicus.* It has been known for a long period to the inhabitants of the northern countries; but the first writer who mentioned it was Borrichius,—and Hiarne in 1683.

Characters.—The frond or thallus is erect, lobed, of a membranous or almost cartilaginous consistence—the edges of the lobes being fringed or toothed. The colour

FIG. 101.—*Cetraria Islandica.*

Shewing (*a*) the apothecia on the larger lobes of the thallus.

passes from greyish white to olive brown, being somewhat paler beneath. The apothecia are placed at the extremity of the blunt lobes, so that their circumference is hardly free; they are flat, shield-shaped, of a chestnut-brown colour, with entire, somewhat thickened or raised margins. Their under surface is formed out of the substance of the frond. This plant has no odour, but its taste is bitter and mucilaginous.

Geography.—It is abundantly found on dry mountainous spots, in the northern countries of both the new and old continent.

Chemical constituents.—The following are the constituents of Cetraria Islandica, according to Berzelius:—

Chlorophylle................	1·6
Lichenic bitter................	3·0
Uncrystallizable sugar........	3 6
Gum	3·7
Yellow extractive colouring matter	7 0
Lichenic amidine	44·6
Bilichenates of potash and lime mixed with phosphate of lime	1·9
Amylaceous fibrine	36·2
	101·6

Physiological effects.—The sugar, gum, and amidine, render this lichen nutritive, demulcent, and emollient. The bitter principle and the extractive give it tonic properties. Captain Sir John Franklin, and his companions, tried it as an article of food, when suffering great privations in America; but it was so bitter as hardly to be eatable.

Uses.—It is frequently employed as an alimentary substance, and in this case should be well washed or digested with a weak alkaline solution to remove the lichenic bitter, which would give it an unpleasant taste. It may be afterwards boiled in water or milk to extract all the lichenic amidine, and the decoction thus obtained has a mucilaginous or rather a starchy quality, and may be employed as a highly nutritious substance. The aqueous decoction, if made sufficiently strong, forms a jelly when cold; when flavoured with a little white wine it is an exceedingly pleasant diet. The meal or powder mixed with flour has been employed in the composition of bread.

When our object is to obtain the tonic or bitter properties independent of the nutritive, we may readily do this by maceration in cold water. Or if we boil the lichen in water without previous maceration, the decoction contains both the nutritive and tonic principles.

It has been principally recommended in affections of the pulmonary and digestive organs, particularly in phthisis, chronic catarrh, dyspepsia, and chronic dysentery. It may be used either in the form of powder or decoction. The *decoctum lichenis* of the London Pharmacopœia is prepared by boiling down an ounce of the lichen in a pint and a half of water to one pint. This quantity may be taken in divided doses in the twenty-four hours.

FILICALES, OR FILICES.

Characters.—Ferns are flowerless, foliaceous, aerogenous, vascular plants, having a distinct axis of growth, and whose reproductive organs are placed on the leaves. They have a perennial rhizome, which either creeps below or on the surface of the earth, or in hot countries rises into the air like the trunk of a tree. In the British Museum is the stem of a fern forty-five feet long.

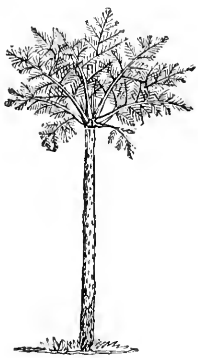

Fig. 102.—*Tree Fern.*

The leaves, or fronds, are attached to the rhizome by a leaf stalk called the stipe; their vernation is gyrate. The reproductive organs are placed on the under surface or edge of the leaves. The sporules are usually triangular, and are arranged without order in their cases, called thecæ or sporangia, and which are collected into little rounded, elongated, or narrow linear heaps or clusters, termed sori. The thecæ have frequently a stalk (seta) which passes up one side, curving with the curvature, and disappearing on the opposite side, forming thus the annulus. When the thecæ are developed beneath the cuticle, they lift this up in the form of a membrane, called indusium, which thus covers these sori.

Division.—Mr. Lindley admits five orders of ferns, namely, Polypodiaceæ, Gleicheniaceæ, Osmundaceæ, Danæaceæ, and Ophioglossaceæ. The first of these con-

tains the only officinal genus of ferns—namely, Aspidium; now called Nephrodium.

Chemical properties.—Odorous matters are found in several ferns; for example, Asplenium fragrans, Aspidium odoratum, &c. Bitter astringent matter is common to the rhizomes of ferns. Some contain acrid matter; thus the rhizome of Calaguala officinalis is emetic, while Osmunda lancea, Aspleniam serratum, and Acrostichum flavescens, are purgative. The vermifuge property of some ferns depends on oil.

Medicinal properties.—The rhizomes are astringent tonics, and have been employed as anthelmintics. Some of them are purgative, and are regarded as emmenagogue also. The fronds are mucilaginous, frequently also astringent and aromatic.

Nephrodium Filix, mas.

This is the *male fern*, ususually termed *Aspidium Filix mas.*

Characters.—It is a common indigenous fern, growing to the height of three or four feet. The rhizome or subterraneous stem lies horizontally in the ground, and in old specimens is a foot or more long, and from six to nine inches broad: it is almost completely enveloped by the thick bases of fallen leaves, usually termed tubercles. These bases (particularly the younger ones) are externally of a dark-greenish brown colour, and internally, of a greenish white, and one covered with brownish scales. The radical fibres (or root, properly so called) arise from the rhizome between these bases. The leaves, or fronds, are from one to three feet long, supported on stalks (stipes) which are beset with brown foliaceous scales (ramenta): bipinnate, the pinnules oblong obtuse serrated. The sori are near the central nerve; the involucre or indusium orbiculari-reniform attached to the sinus; the thecæ, or capsules, are of a brown colour, with a stalk (seta) and ring (annulus); the sporules are small, brown, and oval, and escape by the rupture of the thecæ.

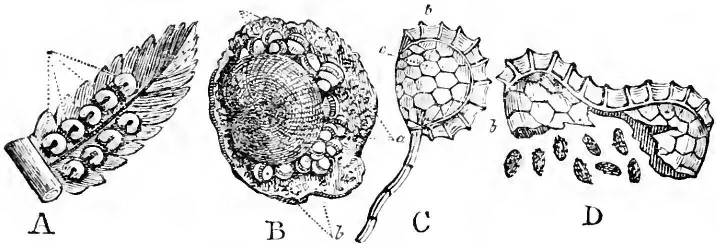

FIG. 103.—*Nephrodium Filix mas.*

(A.) A pinnule with nine sori.
(B.) A portion of a pinnule with one of the sori magnified. (*a.*) The Stomata of the pinnule; (*b.*) sporangia partially covered by the orbiculari reniform indusium.
(C.) Sporangium magnified. (*a.*) The stalk; (*b.*) the ring; (*c.*) membranous sac.
(D.) Sporangium ruptured, with the sporules escaping.

Description of the Rhizome of Commerce.—The rhizome should be taken up for medicinal use in the months of July, August, or September. The radicles are to be removed, as well as the old leaf stalks. By drying, the rhizome acquires, internally, a brownish, or rather reddish-white tint.

Chemical composition.—Several analyses of the so-called fern-root have been made, but I shall only quote Geiger's.

Green fatty oil	6·9
Resin	4·1
Uncrystallizable sugar and easily oxidable tannin	22·9
Gum, with salts, sugar, and tannin	9·8
Fibre and starch	56·3
	100·0

In addition to these substances, Morin says he discovered volatile oil and gallic acid; and Batso states he found a peculiar acid (*acidum filiceum*), and an alkali (*filicina*)

The *physiological effects* of this medicine are not very obvious. In large doses, it is said to excite nausea and vomiting. The oil contained in it is supposed to be the vermifuge principle.

Uses.—Fern-root was employed by the ancients as an anthelmintic, but in modern times was principally brought into notice by Madame Nouffer, who sold her secret method of expelling worms to Louis XV., for 18000 francs. It consisted in the use of two or three drachms of fern root powder at night, and afterwards a brisk purgative of calomel, scammony, and gamboge.

Oil of Fern is said to be a very efficacious remedy for tape worm. It is extracted from the rhizome by æther.

PATHOLOGICAL

OBSERVATIONS ON THE BLOOD:

BEING

THE CROONIAN LECTURES

Delivered at the Royal College of Physicians, May 1836,

By George Burrows, M.D.

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Lecture III.

In the last lecture I described some of the most striking changes which occur in the blood when stagnant in the cells of the spleen. I shall now proceed to the description of similar changes in the liver, kidneys, lungs, and brain.

1. *On the changes in stagnant Blood within the Liver, either within or without its proper Vessels.*

The blood-vessels of the liver may become overloaded or gorged with blood from various causes obstructing the circulation through that organ; the distension of the vessels is occasionally to such an extent that blood is suddenly effused into the parenchyma of that organ, producing a lesion similar to pulmonary or cerebral apoplexy.

These sanguineous effusions may take place in consequence of the rupture of some one vessel, or they may arise from numerous vessels at different parts of the organ: in the latter case collections of blood, partly fluid, partly coagulated, and partly modified in various ways, are found in numerous parts of the liver. Andral states (*Précis*, &c. vol. iii. p. 589) that a liver was shown to him by M. Rullier, which contained effusions of blood in various parts of its substance. Among these collections of blood some were quite fluid, others presented the appearance of half coagulated masses, like currant jelly, and, lastly, some few were more solid, and towards the centre portions of fibrin had hardened and lost the coloured particles.

The idea immediately occurred to Andral, that these masses of coagulated fibrin might perhaps be the sources of new morbid growths, such as encephaloid and other fungoid structures, which are so often discovered in the parenchyma of the liver. This conjecture was supported by meeting shortly afterwards with another liver, in which there were numerous extravasations of blood.

These masses of blood were in very different states: 1. several were still quite liquid; 2. others had more consistence, were grumous, and still retained the coloured particles; 3. some were simple masses of fibrin from which the coloured particles had separated, and these had the ordinary appearance of the firm pale clots found in the heart and arteries; 4. there were other masses of a substance of very variable density, of a pale red colour at some points, and a dirty grey at others, here and there of a dull white, yellowish and greenish, easily broken down by the fingers, like scrofulous matter when it begins to soften.

These masses, in such different conditions, were manifestly only modifications or transformations of the same original substance, which was primarily effused blood.

Several of the smaller vessels were also filled with a yellowish, greyish, soft substance, similar to that poured out into the parenchyma of the organ. In some of the larger branches of the hepatic veins there were masses of a yellowish substance, easily broken down by the finger, resembling medullary sarcoma. This substance was not adherent to the coats of the vein, which, however, were considerably thickened. At several points small bands were discovered, attached by one end to the coats of the vein, and by the other to the morbid mass; at a point nearer than this to the heart the hepatic vein was considerably contracted, and there were some appearances indicating the commencement of adhesions between the opposite surfaces of the vein.

Such facts as the foregoing seem to indicate that some of those tumors in the liver, which have been termed fungoid, take their origin from simple extravasations of blood, which, having coagulated in the parenchyma of the liver, have subsequently undergone various modifications. It must not, however, be understood, that it is here supposed that such is the uniform origin of fungoid tumors in the liver. Instances have also occurred where minute ramifications of the vena portæ have been obstructed by these coagula in various states of hardening or softening, and where the section of the liver has led to the supposition that medullary or other fungoid growths were infiltrated into the substance of the organ. The same mistake has happened in the examination of other organs, particularly in the kidney, and occasionally in the lungs.

It is well known that medullary sarcoma, or encephaloid fungus, is often found in the kidney, sometimes existing in that organ alone, at other times in many other parts of the body. Andral states, that upon two occasions, when he examined kidneys studded with encephaloid fungus with great attention, he discovered that the renal vein was filled with coagulated blood; this had partly lost its colouring particles, at many points was easily broken

down by the pressure of the finger, and at other parts this coagulum was changed into a sanious pus.

This sort of modified coagulum was found in many of the branches of the renal vein; and indeed in those parts of the kidney, where, upon the first inspection, nothing but a morbid mass in the place of the natural structure was detected, still upon a more minute and careful dissection it was discovered, that a great number of the smaller vessels were filled with a substance precisely similar to that existing in the trunk of the renal vein. It was the collection of these smaller vessels, filled with this peculiar modified blood, which appeared to constitute at least the greater part of these masses of encephaloid fungus.

It has already been stated, that similar careful dissection has brought to light a corresponding state of parts in other organs, as the spleen and liver.

Andral mentions a case (*Précis*, &c. vol. iii. p. 637) where he found encephaloid fungus in the kidney, liver, spleen, and lumbar glands. In the same individual the vena cava inferior, the portal, splenic, renal, iliac, and some parts of the femoral vein, were filled with coagulated blood: at some points this was softened, and had the colour of dregs of red wine; at other points it was also quite deprived of its colouring matter. In fact these vessels were distended with a substance closely resembling the fungoid deposit in the different organs.

In the month of August, 1835, I had under my care in St. Bartholomew's Hospital a woman aged 45 years, who had been long suffering from severe pain in the loins, accompanied with a large hard knotty tumor in the region of the right kidney, very painful on pressure, and with other symptoms, which had induced the suspicion that a large calculus had formed in the pelvis of that organ. A short time previous to her death she was attacked with severe pain in the right iliac fossa, and with anasarca of the right lower limb. A few leeches were applied with some relief to the right groin, but the swelling of the limb increased, and she sunk exhausted by the most excruciating sufferings.

The examination of the body after death showed me that the tumor in the right lumbar region was formed by the kidney enormously enlarged, in consequence of numerous depositions of medullary and hæmatoid matter. These morbid depositions were principally in the uriniferous parts of the kidney, its natural structure was nearly obliterated, and the pelvis was greatly encroached upon. Upon the lining of the pelvis and ureter there were small projections of medullary matter which gave those surfaces a very peculiar villous appearance. Similar small roundish depositions of medullary matter were observed upon the lining of some of the renal veins; it was uncertain whether this matter had not at some points forced its way from without through the coats of the vein, or perhaps from the openings of the smaller veins: it could, however, at most points be scraped off the surface of the lining, leaving the surface where it adhered quite smooth. A great number of the lumbar absorbent glands were infiltrated with a similar substance.

There were depositions of a similar character in the substance of the liver principally near the concave surface: these depositions in the liver were globular in form, inclosed by a sort of loose cellular capsule, and could be turned out of the substance of the liver without producing any laceration of the parenchyma of that organ: these masses in the liver varied in size from a pea to a walnut.

There were numerous similar depositions beneath the pleura pulmonalis, but of much smaller size than in the liver. These masses resembled globular collections of effused blood, some of them were grumous retaining the coloured particles, while others were firmer and yellowish; the lungs in other respects were healthy. Some of the bronchial glands were also infiltrated; the thoracic duct was unobstructed throughout.

The pelvic viscera were unaffected by this morbid deposition.

The right common and external iliac veins, as well as the right femoral, were distended by coagula, in which the colouring matter had not separated from the fibrin: the coagulum in the iliac veins was grumous, or like the dregs of port wine; the lining of the vein was smooth and shining, but stained of a dark colour; in the coagulum of the femoral vein, the colouring matter had more generally separated from the fibrin; although this colouring matter was in contact with the lining it did not appear much stained.

These coagula in the veins completely distended their cavities, and obstructed all circulation through them: they had probably been formed a few days prior to death, when the patient was attacked with pain in the right iliac fossa, and gradually increasing œdema of the right lower limb.

I much regret that a more minute dissection of the veins of the kidney was not attempted. I have little doubt but that they would have been found obstructed with hæmatoid and medullary matter, similar to the cases related by Andral. The excuse I can offer for the omission was the oppressive heat of the month of August, and my laborious daily duties in St. Bartholomew's Hospital, which distracted the mind from some particulars which ought to have been ascertained.

M. Bouillaud has also recorded a case nearly similar to the foregoing*. He found the right kidney as large as half an ordinary liver, extending from the hepatic to the iliac region. Encephaloid fungus almost entirely occupied the place of the natural structure of the kidney.

The renal veins and abdominal cava were filled by a pultaceous substance, having the colour of the lees of wine, and almost analogous to that contained in the kidney. The principal large veins of the pelvis and lower extremities were obliterated by coagula of fibrin, whitish and quite soft.

Thus we find that the same state of constitution which induces the deposition of these so called malignant structures in the spleen, the liver, and the kidney, is often accompanied by the formation of coagula in the principal abdominal veins. If these coagula in the veins be carefully examined, we find them varying from the simple state of coagulated fibrin, through numerous degrees of hardening and softening, in which conditions they are hardly to be recognized as fibrin, and bear the strongest resemblance to the morbid depositions in these organs. Among the various explanations which might be offered of the origin of these morbid structures in these organs, would not one naturally be, that the same sort of coagula which had filled the larger veins had likewise obliterated the smaller vessels, and thus had given rise to this supposed encephaloid fungus?

It occasionally happens that the vessels formed within new structures, or the vessels of the organ in which extravasation of blood has already taken place, will burst, and thus fresh extravasation takes place, and perhaps some of the peculiar secretion of the organ is also effused; these being incorporated with the former existing new growth, it is very difficult upon examination to trace out the nature of the original disease. In the same manner it occasionally happens, that when an organ containing new morbid structures is injected, that the fluid passes into vessels of the parenchyma of the organ which traverse this new deposition ; and the experimentalist concludes that the new structure is vascular. These are a few of the perplexities which surround the subject, and demand great caution on the part of the faithful inquirer after truth.

Let us now consider *the changes which take place in the Blood when it is extravasated within the Lungs.*

When blood is effused within the lungs in consequence of some obstruction to its free circulation, it is found under the following conditions:—

1. Within a cavity in the lungs, or in some large bronchus leading to it. 2. In the bronchi and air cells of one or more pulmonary lobules. 3. In the air-cells and the interlobular cellular tissue. 4. In both of these latter situations, and through the ruptured pulmonary pleura into the sac of the pleura.

When blood is effused into the lungs, and remains either in a large bronchus, or in the air-cells of a pulmonary lobule, the consequences are not always fatal, and it may there undergo the usual modifications of extravasated and coagulated blood in other parts of the body; but when the effusion has made its way into the interlobular cellular tissue, or burst through the pleura, the extent of the effusion, the causes of the extravasation, and the effects upon the functions of respiration, are generally so formidable in their nature, that death usually takes place too speedily after the event for any remarkable changes to have taken place in the extravasated blood.

It sometimes happens that when profuse hæmorrhage takes place into the trachea, or from the mucous membrane of the bronchial tubes of a lung, that a part of the blood poured forth subsides, and collects, and coagulates, in the smaller bronchi: the lobules of the lungs around then assume a brown or blackish colour; and these dark hard masses are often described as instances of apoplectic effusions into the lungs. In such cases several hard dark masses, more or less accurately circumscribed, are observed in very different parts of the lungs. These morbid appearances are usually found upon opening the bodies of individuals who have had repeated attacks of hæmoptysis, or who have actually died from that accident.

We must not infer in such cases that the hæmorrhage has taken place simply from those parts of the lungs where these masses are found; it has generally been from a much larger extent of the mucous membrane of the bronchi. Andral, when treating of pulmonary hæmorrhage, adverts to this state of the parts; but I believe the more perfect explanation of the phenomenon was first given by Dr. Watson, in his Lumleian Lecture on Hæmorrhage. Laennec has recorded a case where he found a hard mass almost entirely filling the bronchus leading to the left lung, in a phthisical patient. This substance, in its appearance and structure, was quite unlike the false membranes which are usually formed upon mucous membranes, but, on the other hand, perfectly resembled those coagula which are found in the heart and great vessels, and which have been termed polypi: a great number of minute but well-formed blood-vessels were seen ramifying through the mass. It was

* Andral, Précis, &c. vol. iii. p. 638.

the opinion of Laennec that this substance was a coagulum of blood, which had collected and remained in that part of the bronchus during some attack of hæmoptysis to which this person had been liable during life.

Real apoplectic effusions into the lungs arise from different causes, and give rise to different symptoms, as well as morbid appearances, in the pulmonary tissue. This serious lesion is frequently occasioned by impediments to the passage of the blood through the left side of the heart, more particularly from stricture of the left auriculo-ventricular opening.

When the hæmorrhage into the pulmonary tissue is of great extent, it is accompanied by hæmoptysis during the remainder of the person's life; the tissue of the lungs is torn and broken down by the effused blood, and death supervenes in a day or so. When the hæmorrhage is to a smaller extent, and remains circumscribed, there is usually great dyspnœa and a sense of suffocation, and bloody mucus is generally expectorated; although some cases of circumscribed pulmonary apoplexy occur where the patient does not expectorate any blood, and where the lesion is not suspected prior to death.

In cases of circumscribed apoplectic effusion a series of phenomena ensue, which terminate in the gradual absorption of the coagulum; and this is accomplished by the formation of a cyst around it, or the coagulum is modified and converted into a substance resembling morbid growths in other structures; and more rarely still it may take on vital actions, and eliminate within itself different morbid products.

The following case, extracted from Andral's *Clinique Médicale**, illustrates the assertion that blood effused into the pulmonary tissue may eliminate within itself morbid substances.

A man was admitted into La Charité Hospital, at Paris, suffering from chronic peritonitis, but without any bad symptoms referable to the lungs. After two months he was suddenly seized with dyspnœa, and expectorated a considerable quantity of frothy scarlet blood. The hæmoptysis continued a fortnight, accompanied by a troublesome cough and difficult respiration, but at last ceased. The hæmoptysis returned, and the man sank.

Upon opening this body there were discovered in the right lung several round knobs or masses, of a reddish brown colour, accurately circumscribed, and exhibiting specimens of pulmonary apoplexy described by Laennec. One of these masses was studded with a number of granulations, of a yellowish white colour, and exhibiting all the characters of miliary tubercles in the early stage of their development. Other depositions were composed of a more liquid matter, much like pus: in two of the masses there were but few of these white granulations: in others none at all. There was no appearance of tuberculous depositions in other parts of the lungs, but small tubercles were numerous all over the peritoneum.

Andral remarks on this case, that this form of pulmonary hæmorrhage is not uncommon in the horse, and that he has several times discovered in the centre of these masses of effused blood tuberculous deposits, similar to what he observed in the above recited case. Thus in the same lung some of these masses of coagulated blood were sprinkled or studded with tubercles, whilst others were free from all deposit.

In cases of this description the pulmonary hæmorrhage cannot be regarded as the result of the tuberculous depositions in the lungs, because the pulmonary tissue itself was free from tubercles; and many of these masses also were free from tubercles, which indeed were only to be found in some few of the coagula. It is fair, then, to infer that the tubercles were not the cause of the hæmorrhage, but were formed subsequent to it, and in the substance of the extravasated and coagulated blood.

It is not often that we can obtain opportunities of observing the changes which take place in blood extravasated into the pulmonary tissue, and forming apoplectic effusions.

The next case which I will bring forward exhibits very different states of the effused blood, and perhaps gives us a hint upon the mode in which some cavities are formed in the lungs, and which are neither the result of the softening of tuberculous matter, nor of circumscribed phlegmonous inflammation.

Elizabeth Mann, aged 48, was admitted into Mary ward, St. Bartholomew's Hospital, under the care of Dr. Latham. Her countenance sallow, lips slightly livid; body much emaciated; respiration hurried and difficult, requiring the erect posture; pulse 112, remarkably feeble, and somewhat irregular; has cough, with expectoration of black fluid blood, of a slightly gangrenous odour; slight anasarca of the lower limbs.

The heart's impulse violent, strongly contrasted with the feeble pulse, and felt over an extended surface; the sound loud, and obscuring the sound of respiration: immediately below the left mamma a loud bruissement is heard immediately after the first sound of the heart. Free respiration heard over the greater part of the chest, in front; dulness of sound behind, particularly under the right scapula. She

* Vol. ii. p. 39.

stated that during the last five preceding weeks she had coughed up blood, and had felt her respiration easier since the hæmoptysis commenced. The application of cupping-glasses between the shoulders gave slight relief, but she sank on the third day after her admission.

Upon examination after death, a good deal of effusion was found beneath the membranes of the brain. The large veins of the neck and chest were distended with blood; the coronary veins of the heart were likewise very full. The right auricle of the heart was dilated. The tricuspid opening would admit but two fingers, in consequence of the valves being thickened and partially puckered. Their free edges were fringed with small masses of lymph, which were easily scraped off, leaving only a little roughness of surface. The left auricle was greatly dilated and hypertrophied. The mitral orifice would not admit the passage of the little finger. The valves were thickened and contracted. The left ventricle was much diminished in size, probably in consequence of the great impediment to the passage of blood from the auricle. The carneæ columnæ appeared relatively to the ventricle much thickened. A few depositions of lymph were found upon the surface of the semilunar valves of the aorta, which was small, with some atheroma beneath the internal lining. The opposite surfaces of the pleuræ were found universally and firmly adherent.

In the right lung there were several masses of well defined pulmonary apoplexy. A very large portion of the lower lobe of this lung was occupied by an irregular mass of extravasated blood, of a dark colour. This effused blood presented very dissimilar appearances at different points. In some parts it was firm and resisting, and when divided resembled a slice of damson cheese. At other points the blood was dark, soft, and grumous, whilst in the more central parts of the effusion, the blood and substance of the lung, into which it was infiltrated, were entirely broken down into a fœtid semi-fluid pulp, thus forming an imperfect and irregular excavation. A firm coagulum was found in a pulmonary vein, of the size of a goose quill, leading from this part, and in its smaller branches. Upon the edge of the lower lobe of the left lung there was discovered a hardened mass, about the size of a pigeon's egg: this was dense, and quite impervious to air. Upon making a section of this, it had the appearance of coagulated fibrin, deprived to a great extent of the coloured particles of the blood. The pulmonary tissue was not, however, altogether obliterated in this condensed mass, but was visible here and there in the midst of it. This portion of lung was also accurately circumscribed and separated from the surrounding healthy pulmonary tissue by a layer of coagulated lymph. In fact this circumscribed mass had all the appearance of a portion of apoplectic lung of some standing, from which the colouring matter was absorbed, and around which a membrane or capsule was forming. In removing the lungs from the chest, a portion of the anterior part of the left lung remained attached to the ribs, and thus exposed an extensive cavity in that lung. It was lined by a thick layer of coagulated lymph, beyond which the lung was perfectly healthy. No bands traversed this cavity, though an ulcerated bronchus terminated abruptly in it. There was a slight gangrenous odour emanating from it, and it appeared to have been formed by the breaking down and absorption of the pulmonary tissue, after it had been infiltrated with extravasated blood, similar to the process in progress in the lower lobe of the right lung.

For many minute particulars of this examination, I am indebted to my friend Dr. Pardoe, the indefatigable demonstrator of morbid anatomy at St. Bartholomew's Hospital.

The layers of coagulated lymph, or new membranes, found around these masses of extravasated and coagulated blood, have been already adverted to when speaking of extravasations of blood into cavities lined by serous membranes. There can be no doubt but that they fulfil very important functions. Through their medium the mass sometimes becomes organised, is always circumscribed in its irritating effects on the surrounding tissue, and is sometimes fortunately absorbed. They may be regarded as analogous to the layer of lymph which forms the membrana decidua in the impregnated uterus.

In the *Archives de Médecine* of Nov. 1826, M. Bouillaud has detailed a case of pulmonary apoplexy, which was surrounded by a well-organised cyst, the internal surface of which appeared to him to be destined to become the medium through which its absorption would be carried on.

I am not able to cite any well-authenticated case of the organization of the coagulum formed by pulmonary apoplexy, but I believe the reason to be assigned for this is not that such coagulum cannot become organised, but that the structural changes in other important organs which have induced one extravasation of blood into the lungs, are nearly sure to induce other more extensive extravasations, and thus terminate the sufferings of the patient before sufficient time has elapsed for the development of organization in the former circumscribed apoplectic effusion.

In Dr. Carswell's *Fasciculus on Pus* there

is a case illustrating one of the transformations of coagulated blood in the lungs.

The *plate* 2, *fig.* 1, is intended to represent purulent formations in the lungs, succeeding to suppurative inflammation of the medullary membrane, and veins of the femur, after amputation.

In this plate the whole inferior lobe of a lung is represented highly congested: there was no pus formed except in those portions of it where coagulation of the blood had taken place, and the gradual conversion of the coagulated blood into a yellow puriform substance, is very well delineated.

If this pus had been brought into the lungs by the pulmonary artery, it most probably would have appeared in those parts of the tissue where the circulation was free, and not in the midst of masses of coagulated blood, where circulation must have been impeded, if not wholly obstructed. But this plate of Dr. Carswell's illustrates a series of phenomena in the lungs, which is constantly taking place in cellular tissue; these are, congestion of vessels, stagnation of the blood, its coagulation, separation of the colouring particles from the fibrin, softening of this latter substance, and conversion of it into a more or less perfect purulent fluid.

In speaking of the changes observed to take place in extravasated blood, as well as in blood stagnant in the vessels of the liver and kidney, I have stated, that it was probable that the superficial inspection of the state of the blood-vessels of diseased parts has often led to erroneous conclusions as to the real nature of structural changes. This error has occurred in examining diseased conditions of the lungs as much as in any other part. How very seldom does the morbid anatomist think of following the ramifications of the blood-vessels of the lungs, to ascertain their healthy or morbid condition. Even Andral himself confesses * that he has occasionally been led into error from this negligence, and states, that once, in examining the lungs of a dead body, several parts of that organ appeared to be infiltrated with pus; but upon dissecting more minutely, he found a clot of blood, mixed with pus, in one of the principal branches of the pulmonary artery, and that its walls had softened. In the smaller divisions of this same vessel, no blood was found, but simply pus; these small arteries containing pus were traced into the lobules, where purulent infiltration was supposed to have taken place; and it was found to be owing to the presence of this morbid fluid in the minute vessels, that the lobules had acquired a peculiar greyish tint.

But that which appeared to Andral not the least important fact in this case, and which bears upon the principal object I have had in view in these lectures, was the following: in the same arterial trunk he discovered three distinct substances—(1), coagulated blood; (2), pale fibrin; (3), true pus: one of these substances being so gradually lost in the other, that it appeared to him as if the blood itself, after it had coagulated and lost its colouring particles, had been changed into pus, in consequence of some alterations in its fibrinous particles.

There are also some cases of red hepatization of the lungs, which, by attentive examination, are distinguished from ordinary hepatization, and which in reality differ from the latter in the seat of the morbid alteration. In some of these hepatized lobules of the lungs we find, in cutting through them, that the orifices of the bronchial tubes, so far from being obliterated, are quite open, and even appear more dilated than usual; but the blood-vessels, both arteries and veins, will be found filled with coagulated blood. "If we can suppose this to be deprived of its colouring particles, of its ordinary consistence, and gradually to become fluid, should we not have something similar to the former described supposed puriform infiltration? and thus these two states will only appear to be two different degrees of the same morbid change. If, instead of finding the fibrin in the vessels completely liquified, it has only partially lost its usual consistence, will there not appear to be an encephaloid or tubercular infiltration, instead of the puriform? *"

Thus, then, it is extremely probable that these changes in the fibrin of the coagulated blood in the vessels has often been mistaken for puriform or medullary infiltration; and, indeed, I know of no means yet possessed by the morbid anatomist which would enable him in some cases to distinguish between modified fibrin in the minute vessels of a part, and these peculiar morbid infiltrations of the tissues.

On the changes taking place in the Blood effused into the substance of the Brain.

When we discover the existence of several effusions of blood into the same brain, it is very rarely that we observe them all in the same state; some of them are of long standing, and the mere vestiges of the former effusion are visible; others are of more recent date, and are readily distinguished; whilst some are clearly quite recent, and may be regarded as the cause of the fatal result. In such cases as these, where we discover in the same brain traces of several effusions apparently of different dates, the history of the individual generally apprizes us that there have been

* Précis, &c. vol. iii. p. 533.

* Andral, vol. iii. p. 534.

several successive attacks of apoplexy, and that each of these corresponds pretty well with some one of the effusions.

The effused blood, then, presents very different appearances, according to the time which has elapsed since it has escaped from the vessel or vessels.

Dr. Carswell has very justly observed, that when blood is effused into the substance of the brain, that the changes observed to take place in it may be grouped under the two following heads:—1, those which are characterized by modifications in the colour and consistence of the blood, and these are simple changes in its physical qualities; and, 2, by the formation of a vascular tissue within it,—in fact, by the appearance of organization within the mass. If the brain be examined shortly after the effusion, the blood is found grumous, something like a jelly, around which some part of the blood still remains fluid. Many remarkable changes of colour soon take place: the bright arterial red is lost; it becomes of a deeper colour, almost approaching to black; this alters to a greenish or brownish tint, which gradually fades to an orange, yellow, or dead-white colour. The same transitions in the colour of effused blood are observed in other parts of the body, particularly in the case of ecchymoses into the substance of the skin or subcutaneous tissue, after severe blows; and these shades of colour constitute the well-known features of a bruise. If the brain be examined after a somewhat longer period, perhaps a fortnight, the clot is found more consistent than at first, and is more accurately circumscribed in a cavity; the clot now gradually loses its colouring matter, and becomes of the yellowish or dull white tint; perhaps some reddish fluid surrounds it, and the cavity which contains it appears to be lined with a thin shining membrane.

When the brain of a person who has suffered from apoplexy at some period long prior to death is examined, it frequently happens that no clot whatever is discovered. Instead of the clot, there is found the small cavity, of different sizes and shapes, lined by the yellowish shining membrane, and containing either a gelatinous substance or a serous fluid.

This small sac is occasionally observed to be filled with a structure resembling cellular tissue infiltrated with serum. In course of time this cavity is also obliterated, and no trace of the clot remains. The effused blood and the contents of the serous sac are entirely absorbed, and nothing remains but a simple depression or induration; when this is cut across, the shining yellowish layers which formed the walls of the sac may sometimes be separated; at other times they have coalesced, and form a line of fibrous texture.

When a cyst of the above kind has completely formed around a mass of effused blood, or any morbid growth in the brain, it frequently happens, according to Andral, that the existence of such foreign body is no longer manifested by any severe symptoms. This most probably arises from the circumstance, that up to the period of the formation of the cyst, the surrounding cerebral substance is in a morbid state, which does not continue afterwards.

Hence it may be inferred, that the nature and severity of the symptoms occasioned by the presence of a morbid growth in the brain depend less upon the mere fact of the existence of such morbid growth, than upon the structural condition of the nervous matter surrounding the foreign body.

I have already pointed out the series of processes which nature usually resorts to in order to free the brain from the presence of an effused mass of blood. But if the blood be not absorbed, it may act as a constant source of irritation on the surrounding substance, or it may itself become an organized part.

If the substance of the organ be previously diseased, the surrounding cerebral matter goes into a state of softening, or the inflammation excited terminates in the formation of pus, and the effused blood itself is probably converted into that fluid, and the person dies with abscess in the brain. Lastly, if the effused blood be not absorbed after it has coagulated, the colouring particles separate from the fibrin; it assumes a fibrous or laminated structure, and the first traces of vessels are to be found within it.

Dr. Carswell is of opinion "that the commencement of organization, or the formation of a vascular tissue, is to be traced from this stage in the changes observed in effused blood. The subsequent changes are of various kinds.

It may retain, for a long time, its primary appearance, but gradually be converted into a firm fibrous tissue; or it may be converted into a loose cellular tissue, infiltrated with serous fluid, and traversed by numerous vessels; or, lastly, it may be gradually modified and changed into a substance resembling fungoid growths, as vascular sarcoma, or encephaloid matter.

Andral relates a case (*Précis de Pathologie*, vol. iii. p. 764) which shows the possibility of such an occurrence.

A man who had been attacked with apoplexy and paraplegia for some years, was admitted into La Charité Hospital, at Paris, for some other complaint, under treatment for which he died. Upon open-

ing the cranium, there were found in one of the hemispheres of the brain a pale red mass, of an evident fibrous structure, which was traversed by small blood-vessels, anastomosing with the vessels of the cerebral substance: the brain around this mass was unaltered, and there were no traces of a serous membrane around it.

Is it not probable, remarks Andral upon this case, that the clot produced by the former apoplectic stroke was this organized mass; and in such case, might it not have been converted into scirrhus, encephaloid, or any other malignant growth?

In August, 1835, a young man, aged 23, was admitted, under my care, into St. Bartholomew's Hospital, complaining of pain in the head; which, according to his own account, was not local, but extended all around. There was great tenderness of the scalp and pericranium, so that he could hardly bear it to be touched, or to lay his head upon his pillow.

His countenance was pale; his skin cool; tongue moist; pulse about 60, with very little power. The pains were suspected to be syphilitic or chronic rheumatism, and, after a dose of purgative medicine, he was ordered to take potassæ hydriod. gr. x. three times in twenty-four hours. On the third day after his admission, he became much worse; the pain in the head became intense; he appeared greatly distressed, rather deaf, and stated that he had had a fit about three months prior to his admission. He was immediately cupped on the temples, but rapidly went into a state of coma, from which he did not recover.

Upon examining the cranium after death, the cavity of the arachnoid was perfectly dry—there was not a drop of serum in it. The surfaces of the convolutions were flattened; the lateral ventricles contained about ℥ij. of limpid serum. Upon slicing the substance of the hemispheres down to the level of the centrum ovale, it was remarked that the cerebral substance was particularly white and bloodless; not a single red point was to be seen on the surface. At this part of the examination, the exposed surface of the anterior lobe of the right hemisphere appeared of a light yellow or citron colour, and here the cerebral substance was rather softer than natural. Upon making another slice of about a quarter of an inch in thickness, the substance of the brain at this point was of the consistence of ripe cream cheese, and of a yellowish tint. The knife had also made a section of a tumor, or tubercle, about the size of a large filbert, occupying the front or lowest part of this lobe. The substance of the brain around this tumor was like thick cream, and quite bloodless. Immediately around the tumor there was a zone of minute vessels greatly congested. It was suspected to be a scrofulous tubercle, but the subsequent careful examination proved it not to be so. The greater part of the tumor was firm and elastic, not easily torn, and its fracture had a fibrous appearance. The broken surfaces were yellowish, and looked like fibro-cartilage, in the opinion of Mr. Stanley. The centre of the tumor was softer, and in it were numerous points of blood.

The two surfaces of the arachnoid around this part of the cerebrum were firmly adherent. No other morbid appearances were observed in the cranium. The thoracic organs were healthy; no scrofulous depositions could be discovered in the chest, or abdomen.

It was suggested by Dr. Arthur Farre, that this tumor had originally been a mass of blood effused at the time this man was seized with the fit; and that it was undergoing some of those changes which are known to take place in apoplectic effusions into the brain. This was also my own opinion, but which I would not then express, not wishing to draw any one to my own conclusions, but rather preferring to hear those of others.

Mr. Stanley was inclined to admit the probability of this tumor having had such an origin. The structure of this tumor resembled that of hardened fibrin, partly softened at the centre, and around the tumor the increased activity of the capillary circulation was indicated by the zone of red vessels. If the man's constitution, and particularly the vital powers of the cerebral substance, had remained good, this zone of vascularity would probably have terminated in some membrane or capsule; the coagulum would then have been circumscribed, and perhaps eventually absorbed; at any rate the surrounding parts would have been protected from the irritating effects of this foreign body. This process not having been accomplished, this mass had acted as a constant source of irritation, which had terminated in the disorganization of the cerebral substance, indicated by its softening and yellow colour.

It is not probable that this mass was scrofulous, since no traces of that disease were discovered either in the chest or abdomen.

Other instances might be adduced, where persons have died from cerebral affections, and where tumors have been found in the brain, which have, in all probability, taken their origin from effused blood. Mr. H. Earle has detailed an interesting case (Medical and Chirurgical Transactions, vol. iii. p. 59) of a child who suffered from fungus hæmatodes of the testicle, which he removed by the knife.

After some short intervals, the child was seized with convulsions, became paralytic, and died.

In the brain of this child were found several tumors*. Upon cutting through them, "some were of a very firm consistence, of a dusky red colour, with streaks of white interspersed through the substance. One of them was of a darker colour on its exterior, having more the appearance of a firm coagulum of venous blood." It appears to me highly probable that these tumors were, in fact, coagulated and extravasated blood, which had been partly modified after its effusion.

The changes observed to take place in the blood extravasated into the substance of the brain, correspond with what has been noticed when the same lesion occurs in the lungs and other organs. The extravasated blood acts as a foreign body in all cases, and produces irritation: this irritation sometimes terminates in the disorganization and softening of the surrounding tissue, and, in such cases, none but physical changes are observed in the effused blood; at other times the irritation gives rise to the effusion of lymph around the mass, and this lymph may become the membrane through which the mass is absorbed, or the medium through which vessels shoot from the surrounding parts, and thus the coagulum becomes organized.

I have, in these lectures, attempted to trace the most striking changes which take place in the stagnant and coagulated blood in the living body, whether it be within or without the vessels of the circulation. My principal aim has been faithfully to pourtray the various modifications of which it is susceptible, and I am not aware that any connected view of these phenomena has been before offered to the medical profession.

At one time, the coagulated blood appears to undergo simple physical decomposition, according to some unknown chemical laws, and assumes the appearance of pus and other morbid inorganizable products: at other times its vitality is not lost, but it appears possessed of more vitality than the surrounding tissue. It then becomes the nidus for organization, and is either converted into tissues analogous to natural structures, or it eliminates within itself morbid deposits, and is converted into tissues which have been termed accidental, or heterologous.

Facts are every day coming to light, which strongly call upon us to study these various modifications of the blood in different tissues, and which, in the opinion of Andral, exhibit to us the secret of the origin and nature of a great number of morbid growths.

* The preparations are preserved in St. Bartholomew's Museum.

REMARKS

UPON

THE PHYSIOLOGICAL AND THERAPEUTICAL EFFECTS OF IODINE,

GIVEN IN VERY LARGE DOSES,

In the forms of Iodide of Starch, Hydriodic Acid, and Iodide of Potassium.

By Andrew Buchanan, M.D.
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The following remarks upon iodine comprehend the principal results of clinical observations on the use of that medicine, made during the last nine months in the surgical wards of the Glasgow Royal Infirmary. It was about the beginning of the period just mentioned, that I first became aware of the very large doses in which iodine admitted of being administered. Many of the patients treated took from a quarter to half a pound of it in the course of a month or six weeks; and yet so large a quantity, all of which it was ascertained was absorbed and passed through the body, to be discharged chiefly by the kidneys, produced no injurious effects upon the general health, and in many instances exerted a most salutary influence upon the diseases for which it was prescribed. Struck with a result so much at variance with the commonly received opinions as to the poisonous nature of the preparations of this substance, I prescribed it in every case in which the use of it was at all admissible, with the view of throwing light both on its physiological and its therapeutical effects. In making known the result of these investigations, I shall first describe the preparations of iodine which were employed; I shall next state the most remarkable physiological effects observed; and, lastly, mention the principal diseases in which it was prescribed, and the opinion I was led to form of its curative influence.

Iodide of Starch.

The following is the formula for preparing this medicine:—

℞ Iodinii, gr. xxiv.; Amyli in pulverem tennissimum triti, ℥j. Tere Iodinium cum pauxillo aquæ, et Amylum paulatim immisce. Servetur pulvis lenissimo calore exsiccatus, in vase bene obturando.

When iodine is given in the form of

tincture or of Lugol's solution, or in any of the other forms in which it is usually administered in the uncombined state, the dose may be pushed as far as gr. iij. or gr. iv. in the course of the twenty-four hours; but if that dose be increased, and frequently even before attaining it, pain of the stomach and bowels, vomiting, and other symptoms of gastric irritation, are induced. If, however, Lugol's solution be given in a state of great dilution, and in divided doses, a larger quantity may be taken—even to the extent of gr. vi. of iodine in the course of the day. This last observation, and the nature of the symptoms induced when iodine was found to disagree, led me to believe that the disagreement was to be ascribed to the irritant local action of the preparations employed, and not to any effects produced by the medicine subsequent to absorption. Under these impressions, I was led to look out for some new medicinal preparation of iodine, which might be less acrimonious in its local action, while its absorbability and alterant virtues were not diminished. The iodide of starch suggested itself to me as a substance likely to answer the ends in view. Judging from its taste, I thought it was not likely to prove an irritant preparation, for the acrimonious qualities of the iodine are so blunted by combining with the starch, that the compound tastes much more of starch than of iodine; and on reflecting still further on the digestibility of the starch in the stomach, I thought the combination was not likely to impede, but, on the contrary, rather to promote the absorption of the iodine, and its consequent efficacy as an alterant. These anticipations were fully confirmed by the trials made of the iodide of starch as a medicine.

Iodine and starch appear to be capable, like water and alcohol, of combining together in all proportions. In the receipt given above, the proportions employed are a scruple of starch to a grain of iodine. These were the proportions I tried in the first instance, and I have adhered to them ever since, finding them to answer well. The iodine should be first triturated with a little water, gradually adding the starch, and continuing the trituration till the compound assumes an uniform blue colour, so deep as to approach to a black. The iodide should be dried with a heat so gentle as to run no risk of driving off the iodine; and it ought afterwards to be kept in a well-stopped bottle.

Not knowing what change of physiological effects might be induced upon the iodine by combining it with starch, I commenced the use of the new medicine in the very cautious dose of ten grains, equivalent to half a grain of iodine. This dose was gradually increased to ℈iv. or 4 grains of iodine in the course of the day, without exciting any unpleasant symptom.

Proceeding, therefore, in the same gradual manner, the dose was augmented to ʒiv., equivalent to 12 grains of iodine daily, and still no symptom of gastric irritation was induced, while the secretions were deeply impregnated with iodine. I did not, for some time, judge it prudent to increase the dose further, because, though I felt satisfied that no bad effects were likely to arise from the irritant local action of the iodide of starch, I did not know what might be the consequence of impregnating the system with so large a quantity of iodine. It was only, therefore, after continuing the dose of ʒiv. daily for a considerable period, and trying it in various cases, that I ventured to proceed further; no bad consequences of any kind having resulted from these trials.

The dose taken by the patient to whom the medicine had been first given was now increased by degrees, first to ℥ss., and at length to ℥i., three times a day, equivalent to 72 grains of iodine daily; still no symptoms of gastro-intestinal irritation, and no other symptoms of an unpleasant kind, shewed themselves, while the secretions, and more especially the urine, were very deeply impregnated with iodine, becoming as black as ink on the addition of nitro-muriatic acid and starch. I have occasionally exceeded the last-mentioned dose, but not often, both because I thought that dose in all probability sufficient to produce whatever alterant effects could be expected from iodine, and because the bulk of the dose was so great that the patients objected to it, as being more like a *meal* than a *medicine*. Having satisfied myself, by many trials, of the safety of these doses of the iodide of starch, I have been in the habit, in persons not labouring under any dyspeptic ailment or constitutional delicacy of habit, and whom I wished to put under the influence of iodine, of commencing

the use of the medicine with half ounce doses, and increase them immediately afterwards to ounce doses, if necessary. As there is no great occasion for nicely apportioning the doses, a heaped teaspoonful, dessert-spoonful, or table-spoonful, are convenient enough measures for smaller quantities in private practice. I have always directed the medicine to be taken in a draught of water gruel.

Some medical friends to whom I mentioned the large doses in which I gave the iodide of starch, were of opinion that it must necessarily be an inert substance. I could, however, see no grounds for that opinion. To say nothing in the meantime of its effects in cases of disease, it is certainly not one of those substances, the inertness of which arises from their passing along the alimentary canal unchanged. This is rendered obvious by the iodine appearing abundantly in the secretions, which shews that it must have been absorbed and pervaded the tissues of the body; and since it is found in the secretions in the same state of chemical combination, as when free iodine in any other form is introduced into the stomach, there seems to be no reason why it should not produce the same alterant effects as the tincture of iodine, only with a degree of energy proportionate to the much larger quantity in which it admits of being introduced into the system. Thinking it possible, however, that a portion of the medicine might pass undecomposed through the bowels, I have more than once examined the stools of patients taking it in full doses, and never could discover any traces of the dark colour which would, in that case, have been communicated. On the contrary, the stools were, for the most part, of a paler colour than usual. To be still more certain, I had the fæces voided by a patient taking the medicine in ℥i. doses, subjected to a chemical examination. Water digested over them gave no trace of free hydriodic acid, or soluble iodides. To detect the presence of any undecomposed iodide of starch, the mass was next treated with a solution of potass; but on neutralizing the potass, not one particle of starch was precipitated. It follows, then, that the whole iodine given in combination with starch undergoes the same changes in the first passages as free iodine given in any other vehicle, and that it is wholly absorbed into the system; and the only difference between the iodide of starch and other preparations of free iodine, is, that the former exerts no irritant or corrosive action on the stomach and bowels, and admits, therefore, of being introduced into the body in vastly larger quantities.

Hydriodic Acid.

The following is the formula according to which the hydriodic acid is prepared in the Glasgow Royal Infirmary:

Acidum Hydriodicum liquidum.

℞ Iodidi Potassii, gr. 330
Acidi Tartarici, gr. 264

Solvantur seorsim in Aquæ stillatæ, ℥iss. Misceantur solutiones et quum subsederit Bitartras Potassæ cola. Colato adde aquæ quantum sufficiat ut sint totius liquoris drachmæ quinquaginta, ʒL. = ℥vi. ʒij.

Acidum hoc Hydriodicum liquidum, habet Iodinii, gr. v., in singulis drachmis.

It is a fact well known to physiologists, that when free iodine is introduced into the stomach, it is speedily converted into hydriodic acid. This conversion is probably effected differently in different cases. If a large quantity of uncombined iodine be swallowed when the stomach is empty, the hydrogen with which it combines may be furnished in part by the gastric juices, but it can scarcely be doubted that it is chiefly supplied from the tissues of the stomach itself, which undergo corrosion. When, however, the iodine is given in combination with starch, it is probable that the starch, while under digestion, furnishes the hydrogen which goes to form the hydriodic acid, and in this way the starch defends the tissues of the stomach from the corrosive action which they would otherwise undergo. It appeared to me, however, that it would be well to save the stomach the labour of preparing the hydriodic acid, by giving, for the purposes of medicine, not free iodine, but the hydriodic acid itself.

I was the more inclined to make this experiment, as it would enable us to determine, from direct evidence, whether the opinion, rendered so probable by general reasoning, be also borne out by experience, that hydriodic acid closely resembles iodine in its effects upon the body, and is in reality the active principle to which the ordinary preparations of iodine owe their medicinal efficacy.

The trials made of the hydriodic acid as a medicine fully realized the expectations entertained of it.

The processes recommended in works upon chemistry for forming hydriodic acid are not well adapted for the purposes of medicine, both on account of their complexity, and because they do not yield an acid of which the strength is uniform and easily estimated. The strong mineral acids cannot be employed in decomposing the iodides to form hydriodic acid, as is done in forming muriatic acid from common salt, because those acids re-act on the hydriodic acid as it is generated. The tartaric acid, however, is not liable to the same objection; and I found on trying the experiment of treating iodide of potassium with tartaric acid, in the proportions necessary to form cream of tartar, that hydriodic acid was readily obtained in a state of sufficient purity for the purposes of medicine, although holding some cream of tartar in solution. To diminish as much as possible the quantity of cream of tartar dissolved, the acid and salts are each dissolved in a very small quantity of water, the rest of the water not being added till the precipitated cream of tartar has been removed by filtering. The liquid acid thus obtained has an agreeable sourness. It is at first limpid, or with only a slight yellow tinge; but as happens to this acid, in whatever way prepared, on being kept it soon assumes first a wine yellow, and next a beautiful red colour, from a portion of the acid undergoing decomposition, while the iodine disengaged is dissolved in the rest of the acid. It has been ascertained that this process of decomposition may go on till one-half of the acid is decomposed, when the colour of the liquid is a very dark red, approaching to black. The diluted acid, however, prepared as above, may be kept many months without at all approaching this limit.

The liquid hydriodic acid thus prepared I first tried as a medicine in the dose of a few drops. That dose was gradually increased to ʒj. three times a day, equivalent to gr. xv. of iodine, and at length to ℥ss. three times a day, equivalent to ʒj. of iodine. This last was the ordinary dose in which I exhibited the medicine, although I have given as much of it as ℥j. three times a day, or ʒij. of iodine daily. The acidity of this medicine renders it one of the most agreeable preparations of iodine. The results obtained from numerous trials of its effects were—1st, That the hydriodic acid, if pure (by which I mean, not holding iodine in solution), has no local irritant action if sufficiently diluted. 2d, That it is absorbed, and pervades the tissues of the body, and comes out with the secretions in the very same way as when free iodine is exhibited. 3d, That its therapeutical virtues are like those of free iodine.

The pure liquid hydriodic acid, having no irritant action unless in a state of concentration, may be safely given in water as a vehicle. When, however, the acid has undergone decomposition, the iodine dissolved renders it irritant, forming a preparation perfectly analogous to Lugol's solution, of which it has been already stated that only a small dose can be given without inducing symptoms of gastric irritation. I always, therefore, adopted the precaution of giving hydriodic acid in a solution of starch as a vehicle. But for this precaution, owing to the great proneness of the acid to undergo decomposition, it would prove a very dangerous medicine for continued use. By using the starch as a vehicle, however, it is rendered perfectly safe, for the iodine of the decomposed acid combines with the starch, and thus the portion of the medicine which is not given as hydriodic acid is given in the equally innocuous and efficacious form of iodide of starch. Neither is it necessary, in prescribing, to make any allowance for changes in the strength of the acid from decomposition, for the part of it which has been decomposed is immediately reconverted into hydriodic acid on being introduced into the stomach.

Iodide of Potassium.

The only other preparation of iodine of which I have to speak is the iodide of potassium; and with respect to it, I have only to mention the doses in which I have occasionally given it, as evincing the error which prevails with respect to this substance in considering it as a poison. Magendie gives the iodide of potassium to the extent of a drachm, in divided doses, in the course of the day. Having ascertained that the same quantity might be given in a single dose with perfect impunity, I gradually increased the quantity given, till I found

at length that ʒij. might be safely administered, and might be repeated within twelve hours without any bad effect. Proceeding still further, I at last gave the dose of ℥ss.; and I have not the smallest doubt but it may be given in still larger doses, without producing any hurtful effect. The only precaution I observed in giving these large doses was to make the patient drink freely of diluents. No pain of the stomach or bowels was produced, and the medicine never in the least degree operated as a purgative, but seemed to be altogether absorbed, and was discharged chiefly by the kidneys.

As the iodide of potassium is very often adulterated, it is necessary, to prevent any suspicions from arising in the mind of the reader as to the purity of the medicine employed, to state, that the iodide of potassium used in the Glasgow Infirmary is prepared under the direction of a most able chemist, within the walls of the hospital, where there can be no motive to adulterate it.

It was not merely for the purpose of determining the dose of the hydriodate of potash that these large quantities of it were given. I found that to give it in such doses was the readiest mode of determining certain physiological questions with respect to the diffusion of this medicine over the body; for so large a quantity of it being at once introduced into the system, every fluid into which it is permitted to enter is at once impregnated with it. It is in this way that it is most easily detected in the blood. Two drachms of it were given to a young man affected with gonorrhœa, and as soon as the medicine made its appearance in the urine, which was four hours afterwards, blood was drawn from his arm. On examining the blood, both the serum and crassamentum were found deeply impregnated with iodine. The same dose was given to a boy affected with dropsy of the knee-joint, from which it had been resolved to draw off the fluid. About five hours after the dose had been taken, a very small puncture was made into the joint, and upwards of twelve ounces of synovia drawn off by the cupping-glass. The synovia contained iodine in abundance. To an old man who had one of the largest hydroceles I ever saw, two drachms of the hydriodate of potass were given over night, and the same quantity the following morning. On tapping him some hours after he had taken the last dose, fully more than thirty ounces of serum were discharged, containing a large quantity of iodine.

Physiological action of Iodine and Hydriodic Acid.

The effects of iodine on the animal economy have not been discriminated with sufficient care from those of hydriodic acid, although the two substances, considered as physiological agents, are just as distinct as chlorine and muriatic acid.

The physiological effects of iodine are exceedingly similar to those of chlorine. It acts as a corrosive irritant, exciting inflammation and combining chemically with the tissues to which it is applied. This simple local action is all that, strictly speaking, can be ascribed to iodine, for there is not the least reason to suppose that it is ever absorbed and mingled with the circulating fluids in the uncombined state. The other effects which have been ascribed to iodine are either those of hydriodic acid, or they are secondary effects arising from the inflamed or ulcerated state of the alimentary canal,—which the iodine has produced. To the latter series of effects must be referred the whole of the fearful train of symptoms which have been described by toxicologists under the name of *iodism*, and have been attributed, but most erroneously, to the slow accumulation of the poison in the body. This conclusion appears to me to be fully warranted by considering, that while such symptoms have been observed to result from the use of iodine in forms capable of exciting local irritation, it has been ascertained by numerous trials made in the hospital and out of it, as well by myself as by various medical friends who have done me the favour to state the result of their observations, that no such symptoms result from the use of iodine divested by starch of its local irritant power. Many of the symptoms, too, which have been described, such as indigestion, pains of the stomach and bowels, emaciation, and febrile excitement, are of a kind very likely to result from gastro-intestinal irritation; and with respect to the rest of them it is difficult not to entertain a suspicion that some of them at least may have been admitted as effects of iodine from inaccurate observations. However that may be, I can only say,

that I have never seen the use of iodine followed by wasting of the testicles or of the mammæ, by palpitations, faintness, excessive debility, hurried anxious breathing, dinginess of the skin, copious clammy sweats, increased menstrual discharge, or an oily appearance of the urine, which are enumerated among the symptoms characterizing the supposed affection termed iodism. Some of the symptoms described, indeed—such as bilious diarrhœa, and a diminished secretion of the saliva, are the very reverse of the effects which I have usually observed to flow from the use of the preparations of iodine.

I go on to speak of the effects of hydriodic acid, which I think it does not admit of doubt ought to be regarded as the true medicinal agent, possessing the alterant virtues which have been ascribed to iodine itself. The hydriodic acid, in the concentrated state, is most probably, like the muriatic, a corrosive irritant, but by dilution with water it is completely divested of its irritant quality. In the diluted state, however, it is probably not without a local action on the alimentary canal. Most probably it acts as a tonic. At all events the analogy of the other mineral acids, in which tonic virtues are so generally recognized, warrants the opinion, as at least probable, that it is to the hydriodic acid that ought to be referred the tonic effects which so many observers have described as resulting from the use of iodine.

The hydriodic acid, whether prepared within the body or introduced ready made, is an exceedingly absorbable substance. When given in doses equivalent to ℈ij. of iodine daily, the whole of it appeared to be taken up and mingled with the circulating fluids. What are the fluids with which it mingles, and the secretions by which it is discharged? I have already mentioned, that when hydriodate of potass is given in a dose of ℈ij., iodine is found abundantly in the blood in from four to six hours afterwards. I must also, however, mention, that when iodine is given in smaller doses, although the use of it be continued for a great length of time, no iodine can be detected in the blood on the most careful examination. Mr. Lumsden, to whose kindness and analytical skill I have to acknowledge my obligations, examined both the serum and crassamentum in several patients taking iodine in full doses, and in many of whose secretions it was contained in abundance, without being able to detect any trace of it. How to explain these facts I do not know, unless we are to suppose that iodine does not find its way into the sanguiferous system unless when given in such a quantity at once that the system is completely deluged with it; but that when given in smaller quantities it is not admitted by the extremities of the veins, and is transmitted along the capillary vessels in a way which we do not at present understand. It will be seen immediately that the vessels of certain excretories appear to possess a similar power of rejection over this substance. I have already mentioned, that after giving a full dose of the iodide of potassium, iodine was detected in abundance in the serum exhaled into the serous cavities, and in the synovia of the knee-joint. Of the secretions, it was in the urine that iodine was always detected in greatest abundance. It appeared in the urine about four hours after the first dose was taken, and continued to be detected in it for four days after the last dose was taken. In one or two instances it was found on the fifth and even on the sixth day after. It continued to be observed for the same length of time whether the iodine was given in one large dose, or the body had been gradually impregnated with it. Next to the urine it was in the saliva that the iodine was most abundantly found. It was found also invariably in the tears, and in the mucus of the nose, although in the latter case it was impossible to determine whether it was really secreted by the schneiderian membrane, or came down from the lachrymal gland. Iodine was found also in the milk, but it existed in that secretion in a very small proportion compared with that in which it was found to exist simultaneously in the urine and saliva. Iodine was also found in examining the mucus secreted from the lungs in chronic bronchitis, but it was difficult to determine whether its presence was not owing to an admixture of saliva.

While the hydriodic acid is thus widely diffused over the body, it would be to generalise too hastily to infer that it exists in all the animal fluids. I have already mentioned, that it is only in certain circumstances that it is to be found in the blood, and there are certain

secretions the vessels preparing which appear constantly to reject it. At all events in none of the trials made could any portion of iodine be detected in them. Of these secretions or exhalations the first to be mentioned is the perspiration. I am aware that iodine is said to have been found in the perspiration, but I can only say, that in experiments carefully made and frequently repeated upon patients taking iodine in very large doses, and whose urine and saliva became as black as ink on being tested in the usual way, not the slightest trace of iodine could be detected in the perspiration. The perspiratory fluid examined in these experiments was forced out by the use of diaphoretics, or was collected from the forehead of the patient in the hot bath. At the same time the water of the bath itself in which the patient was immersed, was examined, but with no better success. It may, therefore, I think, be confidently affirmed, that iodine is very rarely, if ever, present in the perspiration. Another fluid, in which I very early looked for iodine, and fully expected to find it, was the purulent matter secreted from sores, for the cure of which iodine was exhibited, but in none of very numerous experiments made on patients fully saturated with iodine, could the slightest tinge of the medicine ever be perceived in the purulent discharges. The absence of iodine from the discharges from the skin, and from ulcerated surfaces, is rendered the more remarkable by its efficacy in the cure of cutaneous diseases, and various forms of ulceration. I have only to add further, that in one or two experiments, iodine was not found present in the serous fluid of blisters.

The whole of the hydriodic acid introduced into the body is discharged along with the urine, with the exception of the very small proportion of it contained in the rejected saliva and mucus of the nose, and milk, when that secretion is going on in the female. The greater part of the saliva being swallowed, the iodine contained in it must be absorbed a second time from the stomach and bowels. A similar reabsorption must take place of the iodine contained in the exhalations that are reabsorbed by the surfaces which effuse them. Thus, after describing many circuits, in various directions, through the body, nearly the whole iodine introduced comes ultimately to be discharged with the urine. The time occupied in this circuitous passage of the iodine is, as has been already remarked, generally four days.

Iodide of potassium is absorbed very readily from the skin: it is found in the urine just as when it is introduced into the stomach, but much less speedily.

With respect to the influence of the preparations of iodine we are here considering over the organs of digestion and assimilation, that influence was, to say the least of it, certainly not of an unpropitious kind; on the contrary, in patients employing these medicines in full doses, the tongue was almost invariably free from fur, and of a healthy red colour; the appetite and digestion were good, and in many instances there was a most obvious improvement in *condition.* Of the two great alterant medicines we possess, iodine and mercury, it is certainly a most important advantage of the former over the latter that it admits of being given freely, not only without injury, but with advantage to the general health; while mercury, given in full doses, is always a dangerous medicine, and often the means of doing irreparable injury to the constitution. The iodide of starch frequently caused costiveness, attended with griping pains of the bowels; and, as was observed in many instances, with a paleness, approaching to a clay colour, of the alvine discharges.

These effects I was inclined to refer to the large quantity of hydriodic acid generated in the stomach, abstracting the free soda from the bile, and probably otherwise modifying its qualities, besides, perhaps, exerting a direct astringent action on the bowels themselves. The occurrence of these symptoms required the use of a laxative. In some cases, but very rarely, the iodide of starch produced the opposite effect of causing purging. In persons of weak digestion, it was often necessary either to give up the medicine altogether, or at least to diminish the dose of it, owing to the occurrence of pain in the stomach. It is possible that the conversion of iodine into hydriodic acid requires a certain vigour of digestion; and if so, the pain occurring in such cases may have been owing to the imperfect mode in which the process of conversion was carried on.

A question has of late been agitated—Whether iodine ever causes salivation? It does not, according to my observations, generally do so; but that it does so occasionally, I think there can be no doubt. In a man who had taken 2864 grains of iodine in the course of 42 days, in the form of iodide of starch, the medicine required to be given up on account of salivation, which was as profuse as I ever saw caused by mercury, and attended with swelling of the face and ulceration of the inner membrane of the mouth. It only differed from a mercurial salivation in being much less obstinate, going off as soon as the iodine disappeared from the saliva. I never saw this symptom occur to the same extent in any other case, but I have repeatedly seen it in a less degree. The man in whom it took place had been frequently salivated with mercury on previous occasions.

In several cases the pulse was accelerated when the system was impregnated with iodine; in many other cases no acceleration could be perceived. Upon the whole, one of the most remarkable circumstances attending the use of this medicine was the absence of symptoms produced by it. Patients who took the largest doses went about, and took their food, just as usual; so that had it not been for the peculiar chemical condition of their secretions, and in many instances the rapid disappearance of their diseases, it would not have been supposed they were taking medicine at all.

With respect to the relative efficacy as medicines of the iodide of starch, hydriodic acid, and iodide of potassium, I am inclined to place them in the order in which they have just been enumerated; although I must admit that the superiority which I ascribe to the first is perhaps owing to my having prescribed it most frequently. The action of all of them, however, is very similar. The only mode of explaining the similarity of action on the body of substances so dissimilar in nature, is by considering the hydriodic acid as the active principle, producing the physiological and therapeutical effects usually ascribed to iodine. It has been already stated, that free iodine is immediately converted in the stomach into hydriodic acid. As to the hydriodate of potass, it is clear that in its passage through the body the muriate and phosphoric acids must lay hold of the potass, so that the hydriodic acid will combine with the weaker bases, the soda and lime, and thus pervade the system nearly in the same state as when free hydriodic acid itself is employed. The presence of the potass, however, must produce an important difference in the action of the hydriodate, which I have no doubt a more attentive observation will hereafter enable us to discriminate.

If the hydriodic acid be the active principle to which the alterant virtues ascribed to the preparations of iodine are to be attributed, analogy will lead us to range those preparations in the series of medicinal agents along with the muriatic, the sulphuric, the nitric, and other mineral acids,—all of which have been held to possess alterant virtues, and have been used on that account in syphilis and other diseases; and the great success which has attended the use of the hydriodic acid may serve as an inducement to try the other mineral acids more extensively, and in fuller doses, than they are commonly prescribed.

Glasgow, 110, St. Vincent-Street.

OBSERVATIONS ON LITHOTRITY;

In Reply to Sir Charles Bell's late Strictures on that Operation.

By M. Civiale.

To the Editor of the Medical Gazette.

Sir,

When I first read in your excellent journal the attack of Sir Charles Bell on the principles and practice of lithotrity, I fully expected that some of your learned countrymen would furnish you with a prompt and satisfactory answer to it. Having been disappointed in this expectation, I beg to trouble you with the following observations, to which I trust you will give an early place.

I have the honour to be, sir, your most obedient and most humble servant,

Civiale.

Paris, June 16, 1836.

When doctrines are supported by the rank, reputation, and talent of those who profess them, they are not without influence, although drawn from erroneous data, or the offspring of mere spe-

culation. The name of Sir Charles Bell must therefore have given circulation and credit to his strictures on lithotrity, contained in his clinical lecture delivered at the Middlesex Hospital School, on the 14th of March, 1836, and published in the MEDICAL GAZETTE of the 19th of that month.

It is not for the first time that English publications have contained serious errors upon the subject of the destruction of vesical calculi—errors which I should have considered it my duty to have noticed, were it not from a conviction that such writings had been dictated more by views of personal interest than by a wish to bring an operation of incontestable utility within the domain of science, and subject its principles to a fair examination.

Silence and contempt are the only answer which a man who respects his own character can give to libels of this description. But in the present instance the position is no longer the same, for science alone seems interested in the question which has just been agitated by one of the eminent surgical authorities of England. I therefore feel the less hesitation in undertaking the defence of lithotrity, since the opinions expressed by Sir C. Bell can in no degree alter the high esteem I entertain for his distinguished character, or diminish the admiration to which his profound knowledge, and his important labours, have so justly entitled him. I hope, therefore, that he will view with no unkind feeling the following observations, which have been solely prompted by the interests of science.

The remarks with which Sir Charles introduces the subject are undeniable: first, when he speaks of the cruel tortures endured by patients afflicted with the stone—of the anxiety produced in the minds of the sufferers, and of their medical attendants, by the dangers consequent upon the operation of lithotomy—of the painful uncertainty arising from doubtful means of *diagnosis*—and, finally, of the powerful influence which the operation exercises upon the moral feelings of the patients, and of their attendants. These are all truths upon which a difference of opinion has never existed, nor has any one as yet thought proper to contend that the operation of lithotomy can be safely performed without a perfect knowledge of anatomy, or by any but a skilful and practised hand. With respect to the precautions to be taken in extracting the stone, and the ridiculous notions of those who pretend to determine the merit of an operator by means of the stop-watch, suffice it to say, that on these points all good practitioners are unanimous—I mean all those who seek for something else than an opportunity of exhibiting themselves, and of dazzling the eye of the spectator; and I rejoice to find that the opinions on this subject expressed in my fourth letter on lithotrity are strictly in unison with those of Sir C. Bell. It would not, however, be just to confound the measured pace with which all important surgical operations ought to be conducted, with the delays arising from the slow and cautious examination which is rendered necessary by unforeseen and unavoidable obstacles. These latter circumstances should be taken into account whenever the merits of any particular method are brought in question. On such occasions the surgeon may look at his watch, and count the minutes, without exposing himself to the stigma of having *received a bad education;* for the moments seem long to the patient who is placed under the knife of the operator.

But there is one point to which I am particularly anxious to call the attention of the learned surgeon of the Middlesex Hospital: I refer to the frequent occurrence of large calculi in the bladder, and to the presence of several at the same time, accompanied by organic lesions of a more or less serious character. It is, unfortunately, but too true, that the great majority of patients who suspect they have stone in the bladder, shun as much as possible the means of ascertaining the existence of the dreaded evil. What they most apprehend is to find their suspicions realized. This pusillanimity does not arise from the nature of the disease itself, but from the terrors inspired by the operation of lithotomy, which, until lately, was the only resource within the reach of the healing art. A patient affected with stone in the bladder contemplates on the one hand nothing but the most dreadful torments, with only death for their limit, and on the other, a frightful operation, the pain of which completely paralyses his courage. Can his hesitation then be a matter of surprise, particularly when we are aware of the fact of its being kept up and increased by

the opinions of the ablest practitioners, who think, and with good reason, that the operation should be deferred till the last extremity.

Sir Charles Bell has taken into account the moral influence which already results from the new method of treatment, as an operation much less appalling and dangerous than that of lithotomy. Already, in fact, patients begin to exhibit less reluctance in applying for medical aid.

This influence will become much more extensive when surgeons themselves awake to a sense of study, and, listening to the voice of humanity alone, shall have ceased to throw doubts on the utility and advantages of the new method, especially when, having divested themselves of all predilection for particular systems, they no longer investigate facts through the prism of prejudice. I feel happy, however, not to have occasion to allude to feelings of envy or private interest in the present instance, as I am well convinced that such sentiments could never enter into the mind of the eminent surgeon to whom I now offer a reply.

While treating of the destruction of stone in the bladder, Sir C. Bell makes some remarks on the sensibility peculiar to certain tissues under a morbid state, and which he adds, cannot be appreciated at the moment of examining the patient, although it shortly after manifests itself, and leads to the most serious consequences. He founds his opinion upon the local sensation of pain, and the general disturbance, which sometimes follow the simple introduction of the finger into the rectum, for the purpose of examining the prostate gland; and particularly from the passage of a catheter or bougie through the urethra.

But in the first place, this consecutive pain, those febrile symptoms, and nervous sensations, are the phenomena which should be considered in the light of exceptions to the general rule, and are to be attributed to unknown predispositions. They are not met with in any thing like the majority of patients who are sounded.

Secondly, daily experience shows that they are only present after the first introduction of the catheter, or during the first few examinations, and that the reiterated use of the instruments, instead of irritating the parts, diminishes their sensibility, and to such a degree, that after they have been used for a certain time, local pain is no longer felt, and the general symptoms cease to exist. This truth has been fully confirmed by the evidence of lithotrity, as far as the urethra and neck of the bladder are concerned, but it has also established a fact previously unknown, that the same result obtains in the bladder itself; a fact which must be regarded as important, inasmuch as it adds to the list of those with regard to which the speculations of theory have not been confirmed by experience.

It appears to me that Sir C. Bell has been led into error in his mode of appreciating the sensibility of certain tissues, according to the consequences resulting from a few operations of lithotrity. I attribute this to his having overlooked an observation which I had long since made—namely, that in certain operations for crushing the stone, and particularly that selected by himself, the instrument rubs against and wounds the sides of the bladder, especially when the operation has not been conducted with due precaution.

The lesions resulting from this method, although not very painful, may give rise to serious consequences, which I have elsewhere proved, pointing out at the same time the means of avoiding them. But the eminent surgeon who lectures at the Middlesex Hospital is too enlightened and too just to charge the method itself with an accident resulting exclusively from one of the modes of applying it, and from faults committed in carrying it into execution. Moreover, if the *latent* sensibility of the prostate and of the neck or sides of the bladder exercises that great influence in cases of lithotrity, which Sir C. Bell supposes, must it not also play an important part in the operations of lithotomy, particularly when performed in the *perineum*, which is the part almost exclusively chosen in England in cutting for the stone? For in this operation there is something more that the mere friction caused by the passage of an instrument along the urethra; deep incisions must be made, followed by forcible distension, lacerations, and rubbing and tearing of the parts. These effects take place even in the most simple cases, but it would be impossible to calculate their extent and intensity when the stone is of considerable size. No patient could survive such sufferings,

if the opinion of Sir Charles Bell were well founded. Fortunately for humanity, such is not the case; and experience has proved to lithotomists, that it is possible to act even with a certain degree of force upon the neck of the bladder, without exposing the patient to accidents of so serious a complexion.

Sir C. Bell lays particular stress upon the painful sensation resulting from lithotrity, and especially upon the sufferings which take place after the operation is performed; for he admits that but little is felt while the patient remains under the hands of the operator, although even this is not altogether without exception.

The attempt to decide a practical question upon the evidence of a few isolated facts, is a rock which my distinguished contemporary has not been able to avoid. A small number of patients who did not enjoy those favourable conditions which I have clearly laid down, have, no doubt, suffered pain in consequence of the application of lithotrity; but these were cases of an exceptionable nature. On the contrary with the great majority of persons who have undergone this operation, their sufferings began to diminish from the first day they were operated on. This is a fact, against which it is impossible to raise the slightest doubt. Thus the supposed increase of pain to be felt at subsequent visits, and these dangers which, in the opinion of Sir C. Bell, seem to render the operation so formidable, and so often fatal, in point of fact do not exist.

The line or direction of the urethra, and the introduction of straight instruments through that canal, have given rise to so many researches, and to so much controversy, that their reproduction was hardly to have been expected. Sir Charles Bell, however, has been pleased to reopen the question; using arguments a hundred times refuted. This new advocacy is the more surprising, as the profound knowledge of Sir Charles in anatomy, and his extensive practice as a surgeon, must have given him opportunities of appreciating the points in dispute, as well as that sort of tacit convention adopted with respect to the direction of the urethra, and the reasons for which a curved form had been given to the ordinary catheter, so as to make him aware of the facility with which the canal of the urethra may be brought into a rectilineal direction. Daily experience has shown that the introduction of straight catheters is at once extremely easy, exempt from danger, and but slightly painful.

Upon what grounds, then, I may ask, does Sir Charles rest his opinion, that these instruments "do violence" to the urethra and to the neck of the bladder, and that they are extremely dangerous? Unfortunately he has forgotten to tell us, and I am at a loss to comprehend his assertion. Is it necessary to repeat incessantly that the straight catheter only performs in a different manner that which is done daily with curved instruments? In fact, the direction of the urethra is changed in both cases. When an ordinary catheter is introduced, the straight portion of it occupies the whole length of the urethra, and the curved extremity is lodged in the bladder; so that in examining this viscus, the handle of the instrument is lowered to a level with the thighs of the patient. The curved instruments employed for crushing the stone must be used in the same manner. As soon as they have entered the bladder, they act upon the urethra in precisely the same way as if they were straight throughout their whole length; the only difference being in the manner of introducing them. But this difference constitutes a mode of proceeding long since reduced to precise rules, which I have elsewhere made known, and which have already been sanctioned by long experience. I confess I can neither understand the difficulties which have made some surgeons depreciate the introduction of straight instruments, nor the inconvenience with which they are said to be attended; since they clearly act on the urethra in the same manner as curved instruments and ordinary catheters, the use of which has never been called in question.

It is the duty of men who occupy the upper walks of science not to adopt or reject any proposition on slight grounds, and to abandon all frivolous motives to the vulgar. The conclusions the learned lecturer has drawn from his preliminary observations, and from considerations of an approximative character, give us reason to presume, that had he entered on the examination of lithotrity in a more direct manner, he would have es-

caped from the prejudices against which it is the fate of all new discoveries to have to contend. It is therefore matter of regret, that he did not think proper to demonstrate this method in the full extent of its application, and with the various processes it embraces; that, on the contrary, he has charged it with disadvantages from which it is exempt; and that he has founded his opinion upon exceptional cases and gratuitous suppositions, and even on accidents having no direct connexion with the operation.

I have fully detailed, in various publications, the different modes of operation by which the stone is successively seized, crushed, pulverized, rejected or extracted; and experience has confirmed the correctness of my precepts, which no one any longer attempts to call in question. Sir C. Bell, however, asserts, that the instrument cannot always be withdrawn from the bladder; that its branches, while they bend, may also be broken; and that to such accidents several patients have fallen victims. He gives the details of a case in which the instrument was so much bent that it was impossible to withdraw it, and states, that the patient died after the operation of lithotomy, which it was thought necessary to perform. He adds, that fragments of stones have more than once been left in the bladder, where they became the *nuclei* of other stones, and that portions of the broken stone remaining between the branches of the instrument have rendered their extraction difficult and painful.

In England, as elsewhere, the infancy of lithotrity has probably been signalized by some unfortunate occurrences; and I am far from throwing the slightest doubt on the facts, which are but too numerous, brought forward by Sir C. Bell in proof of his assertions. That bad instruments have been made, there can be no hesitation in believing; that those who employ them have not always acquired that manual dexterity so indispensably requisite in this delicate operation, is also but too true;—perhaps even skilful operators have not always proceeded with due caution; and it is also probable that this new method has been adopted in cases not within its sphere. It is no wonder, then, that when these various circumstances are combined, they should have led to unfortunate accidents, almost inseparable from the practice of every new operation. But what inference can be drawn from this against the principles and practice of lithotrity?

It is singular enough that Sir C. Bell should place under the same ban of proscription the various instruments which have at any time been proposed for this operation, apparently unmindful that their mechanism and action are so widely different. It is in referring to straight instruments that Sir Charles cites the unfortunate case to which I have just referred, although, in point of fact, it arose from the use of a curved instrument. Moreover, this fact, now of old date, cannot prove that the instruments, and method adopted by the operator at the commencement of his practice in London, were defective. But these imperfections have since been obviated, and daily opportunities are now afforded to the most incredulous to convince themselves of the utility of the perforator *(percuteur)*, since it has undergone important modifications.

According to its present construction, this instrument has enlarged the sphere of action of the new method; for it not only facilitates the treatment, but abridges its duration. It is to this improved instrument that Sir C. Bell gives the preference in his trials of lithotrity; for even he has made trial of it, and recommends it in certain cases. How, then, can the profession reconcile these favourable views with the disadvantages and dangers attributed by Sir Charles to the instruments employed, and which, in conclusion, he declares ought to be consigned to the butler, for the purpose of uncorking bottles?

Sir Charles observes, that a single operation is not sufficient for the patient's relief. When presented in this absolute manner, the assertion is not correct. Every one knows that the duration of the treatment of lithotrity must depend on the size and number of the stones, and on the state of the organs. Thus, whenever a patient presents himself under favourable conditions, that is to say, when he allows himself to be operated upon at an early period of the complaint, the stone can be completely and effectually removed in five minutes. Of the three hundred cases I have treated, in about

fifty this period has sufficed; and on all those occasions I invariably employed the three-branched instrument, which so many surgeons, especially in England, consider so imperfect.

In describing the application of lithotrity, according to both methods, and comparing this operation with that of lithotomy, Sir C. Bell has fallen into some serious errors, not only with respect to the *manipulation*, but also to its effects. It would detain me too long, however, to rectify these mistakes in succession, and I shall therefore confine myself to a collective notice of them.

In the parallel I have lately published, there will be found the most convincing proof that Sir C. Bell has been egregiously deceived, either by certain disappointed individuals, or by an incorrect application of the small number of facts which he has had a personal opportunity of observing. No doubt a series of new facts, which the practice of an extensive hospital cannot fail to supply, will suffice to alter his opinion as to a mode of operation by means of which I have already effected the cure of more than 300 patients, amongst whom I have to count 22 physicians of the first and most distinguished characters of the period, namely, *Dubois*, *Edholm*, *Lisfranc*, &c. These constitute a powerful rampart, against which the arms of prejudice and the shafts of envy must be levelled in vain.

With respect to the doubts which certain individuals have attempted to throw on the results of my practice, and which might have held the opinions of foreigners in suspense, I have an infallible mode of removing them by invoking the aid of publicity. I have, therefore, made known the name of each patient, and the circumstances attending each operation. These documents have been deposited for several years at the Institute, where they may be consulted. Some persons had thought that they had discovered in them proofs to the contrary of what I had advanced. An exact verification, however, has shown that they had fallen into error, and the medical public know now what credit ought to be attached to those hasty assertions by which the authors had flattered themselves that they were able to carry by surprise the belief and the authority of one of our learned bodies.

As to the attempt to take advantage of some vague expressions contained in a report presented to the Academy of Sciences, and the errors which had crept into another report presented to the same Academy, suffice it to say, that the same commissioners from whose words it was sought to be shown that I lost 1 patient out of 4, have declared, in 1835, that out of 244 patients operated upon by me in 1833, no less than 236 were cured, 5 died, and 3 continued in a state of suffering. I should not have referred to these facts, already of rather ancient date, but with the view of showing how many attempts have been made to pervert them. Those surgeons who have not had the same opportunities as the commissioners of the Academy to convince themselves of these perversions of fact, must have no doubt experienced some repugnance in refusing that belief to assertions presented under the aspect of good faith.

It was perhaps under the influence of such inspirations that the distinguished surgeon of the Middlesex Hospital was seized with the fit of ill-humour which he has so unjustly vented on the art of lithotrity. It must not, however, be imagined, that the picture presented by Sir Charles is altogether of the grave and gloomy cast. A former quotation has shown, that the learned lecturer will sometimes venture a digression in the comic vein. The following is another instance not less amusing:—A French surgeon, resident in London, refused 100 guineas from a patient who was anxious to be freed from the stone by means of lithotrity, and insisted upon 400, which the sufferer was obliged of course to give. A short time afterwards, the patient having experienced a renewal of his sufferings, sent for Sir Charles Bell, who discovered a stone in the bladder, and received one guinea for his attendance and for the trouble of sounding the patient. After making us acquainted with the price of his visits, Sir Charles expresses his astonishment at the difference between the trifle he accepted and the immense sum thrust into the "egregious maw" of the Parisian cormorant.

No doubt the practitioner alluded to is at perfect liberty to make his own terms for the operations he performs, but why should the price he thinks proper to demand be made the subject of reproach against the art of lithotrity?

After telling this anecdote, Sir Charles

gives it to be understood that the French operator allowed some fragments to remain in the bladder, and that they had served as nuclei for the formation of other stones. I shall not enter into a discussion of the points which such suppositions might suggest, but I shall merely repeat, that the instrument and the method adopted on that particular occasion may not have been sufficiently perfect, so as completely to free the bladder of the stone and all its fragments. At all events this would furnish an argument, not against the art of lithotrity itself, but against a particular instance of its application which has been the subject of too much praise.

ON HERMAPHRODISM IN MAMMALIA.

CASE OF THE FREE-MARTIN.

By R. H. Allnatt, A.M. M.D.

The union of the male and female organs of generation, it is well known, is common to many creatures low in the scale of animal life. These are what have been called natural hermaphrodites.

In plants this blending of the sexes is almost universal, and it is curious to observe, that as animals emerge slowly and gradually as it were from mere vegetable existence, this peculiar adaptation is still manifest. As they, however, become more complex in their structure, are more perfect in all their parts, "and each part," says Mr. Hunter, "is more confined to its particular use, a separation of the two necessary powers for generation has also taken place." When, therefore, a blending of the sexes occurs in the mammalia it is considered, from its comparative rarity, a *lusus naturæ*, and termed unnatural or monstrous hermaphrodism. In the highest order, man, such an union appears never to have occurred, although certain malformations, and fancied assimilations, have given rise to the idea of human hermaphrodism. The remark is made by the late John Hunter, and it is, perhaps, a curious physiological fact, (for which, however, he offers no hypothetical explanation), that *all* hermaphrodites partake, externally, of the female conformation; and in a subsequent part of the work from which I have quoted, but perfectly unconnected with the original assertion, he supposes, that the female character contains more truly the specific properties of the animal than the male, for he says, "in animals just born, or very young, there are no peculiarities of shape to distinguish one sex from the other, exclusive of what relates to the organs of generation, and that, towards the age of maturity, the discriminating changes appear; the male then losing that resemblance he had to the female in various secondary properties. It is evidently," he continues, "the male which at this time in such respects recedes from the female, and if the male be deprived of his testes, when young, he retains more of the original youthful form, and is therefore more similar to the female." With all due respect for the opinion of such an acute observer as Mr. Hunter, one cannot well imagine the unnatural state of an emasculated animal to be a true type of the perfect creature: nay, more, some animals which have undergone the operation of castration absolutely attain to a greater size than the entire fellows of their species, and thus the argument militates against itself, in as far as the *analogy* is concerned. May we not, still directed by as fair a show of reason, conclude that to be the most natural state in which the animal arrives, by gradual advances, at the highest attainable degree of strength and perfection?

But to waive a doubtful point from which little good can ensue; it appears that hermaphrodism may occur in every tribe of animals having distinct sexes, although, as was before remarked, in the human being it has never yet unequivocally been known to exist. John Hunter considered it as most frequently occurring in the horse, ass, sheep, but particularly in black cattle. It is a generally admitted fact, (for it appears almost an established principle in the economy of propagation), that when a cow produces twin calves, the one a bull calf and the other a female, that the latter exhibits a peculiarity in the development of the genital organs, is unfit for propagating, and has a frame, when fully matured, resembling that of the common ox; this is a hermaphrodite, and is known by the name of a free-martin; and as far as observation at present extends, is supposed to be the

"nearest approach to the state of perfect hermaphrodism*."

It does appear an unaccountable fact that such a law should almost universally obtain, and that neat cattle in particular should be subject to such an arrangement. Some of our brethren to whom nothing is strange, and who find a parallel for every divergence from the ordinary decrees of nature, have discovered that the same law pervades the universal family of mammalia, and have recorded instances by which it appears that even the female children of human beings born with a male have assumed the nature of a free-martin! But in all these cases there would seem to be no more rational or conclusive testimony than that the women have proved sterile, and it would be almost as great an abuse of lawful reasoning to condemn, upon such evidence, all barren women to hermaphrodism, as it is to consign those to free-martinism who have the double misfortune of sterility and, under the peculiar circumstances, of having been born one of twins.

Mr. Hunter has recorded the result of his examination of three hermaphrodite cows, and, it appears, they individually presented different malformations; each had some rudiment of the female organs, but at the same time something deficient either in the connexion of the uterus with the vagina, or in the development of the ovaria, and in each some small part of the male generative system could be detected. I have lately had an opportunity of witnessing a specimen of this anomalous animal, and, as such cases are comparatively rarely noticed, I have taken the liberty of transmitting the result of the inspection for publication. It is to be regretted that the creature had not arrived at maturity, so that the generative apparatus might have been more fully developed; as it was, however, there was sufficient evidence of a great divergence from the regular conformation.

It may be well, perhaps, to remark here, that Mr. Hunter himself considered the mode of production of the free-martin to be quite peculiar to black cattle; although he admits, upon the concurrent testimony of physiologists, that other animals, as I have before stated, may be the subjects of such an aberration. The person by whom the animal (the subject of this communication) was slaughtered, assures me that he has, in two or three instances, killed full-grown hermaphrodite cows, and that in every one there has been a total deficiency (to use his own expression) of the "breeding bag," or uterus.

The following is the substance of the notes taken at the examination, in conjunction with my friend, Mr. John Hedges Marshall:—

Vagina impervious, terminating in a cul de sac, which was curiously elongated at the extremity, connecting it with the uterus.

Uterus exceedingly small; a mere blind vermiform continuation of the vagina.

Vesiculæ seminales impervious; the extremities exhibiting a pecular *epididymoid* structure.

Distinct traces of impervious Fallopian tubes, which were lost immediately above the fundus uteri.

Vasa deferentia pervious; but, instead of traversing to form the epididymis, terminating in a small prostate.

Meatus urinarius opened by a small curiously formed orifice *laterally*, and not by a direct continuation with the sulcus urinarius.

In connexion with the last-mentioned fact, it was observed that the animal, during life, contorted its body into a most extraordinary emprosthotonic curvature, during the time of voiding its urine, and seemed perfectly incapable of performing the operation in its natural horizontal position.

Mr. Hunter questioned whether the general law were an universal one, with regard to the propagation of the free-martin, but unfortunately was not able to set the question at rest by actual personal experience. It should be observed that he uses the broad assertion (which Mr. Mayo has quoted in his "Outlines of Physiology,") that "the animal *never* exhibits sexual propensities;" and as far as the observation of this great man extended, it was no doubt correct. This, however, is by no means the true state of the case. A clergyman of great respectability, with whom I lately conversed upon the subject, informed me that he had bred a free-martin upon his estate, which had not only shown the natural desire for the male, but had actually admitted him — of course ineffectually; and I saw but yesterday, working in harness,

* Mayo's Outlines of Physiology.

a true, apparently female, adult free-martin, belonging to William Toovey, Esq. of Newnham, Oxfordshire, which occasionally manifests its male propensities in a most intelligible way. This gentleman informed me, that when the cows, amongst which this martin is kept, exhibit their natural fitness for the male, this creature, unlike the spayed heifer, or common ox, is at that period peculiarly on the alert, and has been observed to leap the cows in perfect resemblance of the entire bull *. A gentleman also of this neighbourhood had a true free-martin killed, a short time since, which had taken the bull several times, but had never propagated: after death, scarcely a vestige of the uterus could be discovered.

In conclusion, may I be allowed to suggest an inquiry to your physiological correspondents, arising from the foregoing observations—*upon what specific peculiarity does the propagation of the free-martin depend?* To me, I confess, the proposition, in the present state of our knowledge, appears almost inexplicable. It is vain to tell us, as we have been told, that nature, thwarted in her endeavours to produce two perfect beings at the same time, has, by a species of compulsion, blended their sexes; for then the whole race of mammals would occasionally present this abnormal deviation; and nature works by laws too unerring and uniform to be counteracted by incidents of her own creation. In fact, there exists no rational theory upon the subject; which is the more strange when we consider its interest, and the circumstance of the cases themselves being of such comparatively frequent occurrence, affording easy scope for direct observation.

Wallingford, June 26, 1836

* This animal, in voiding its urine, strangely contorted its body, and was incapable of maintaining a continuous uninterrupted stream; but the fluid was emitted in a divided current at intervals, *per saltum*, and in small quantities at each jet.

ON PULSATION IN THE VEINS,

THE CAUSES OF THAT PHENOMENON, AND MODE OF OBSERVING IT.

To the Editor of the Medical Gazette.

SIR,

As the following simple experiment relates to some novel and interesting opinions now before the public, I shall feel obliged if you can find a place for an account of it in your forthcoming number.

In a paper communicated to the Royal Society a few weeks since, I had attributed to the venous circulation a power of propulsion derived from the contraction of the left ventricle, and operating through the medium of the capillary system: I had inferred that the wave of the arterial pulse is prolonged into the veins. Among other evidence, it was stated that I had repeatedly found, after a full meal, on assuming the horizontal position, that the middle frontal veins having become distended may be seen to pulsate. Repletion may be necessary, but only so far as to fill the vessels, and a strong light (as, for instance, the direct rays of the sun) will be desirable. There is a slow diastole, followed by a rather more slow and less distinct systole. The venous action appears to be synchronous with that of the temporal artery, in point of time, but not with respect to duration or persistence.

It has subsequently occurred to me, that an instrument of sufficient delicacy might enable us to detect similar venous pulsations elsewhere. A fine, but firm, capillary lever, with a long index radius, seemed at once to supply all that was requisite. I drew out a very thin rod, in black sealing-wax, about two inches long, and, with a little tallow, fixed one end of this across a vein on the back of my hand; so that nine-tenths of the length projected over one side of the vein, whose dilating power was applied very near to the fixed extremity of the little lever.

In this manner, with the precaution of keeping the vein moderately distended, as by a gentle ligature on the arm, the motion became very manifest; especially under circumstances of vascular repletion and excitement. The little index-point slowly rose and fell with, or possibly a little later than, each radial pulsation. It only remains for me to add, that I have repeated this experiment on several persons, and on different veins, and the result has been the same in all cases. I think, however, that, in my own person, a very few hours' fasting destroys the phenomenon, as far as it is appreciable by the means described.—I remain, sir,

Yours very faithfully,

T. W. KING.

15, Dorset Terrace,
Clapham Road, July 30, 1836.

P.S.—The paper referred to above, is intended to prove that the right ventricle of the heart is liable to dilatation by venous afflux, from various physiological causes, and that the dilatation produces a corresponding degree of valvular displacement and reflux into the auricle. The paper also shows that the structures on which this *safety-valve* action depends, are gradational in their development throughout the class mammalia; man occupying a middle place in the scale of gradations. The like successive degrees are pointed out in birds. The divers of the two great classes possess the most complete *safety-valves.* The lungs and left ventricle are supposed to admit different degrees of activity in the circulation at different times; and the accumulation which may occur in the right side of the heart, from repletion, from the revulsion of cold, and from the general compression of the valvular veins by muscular exertions, are circumstances tending to over-distension of the right ventricle; especially when combined in any great degrees.

Now the thin wall of the ventricle yields the most, and it receives attachments of cords and columns from the tricuspid valve, which are thus subject to retraction during the distension. The lungs are relieved, by reflux, from a too sudden or excessive afflux. The variation of the safety-valve function in animals depends on the variations which exist in innumerable degrees, with regard to the firmness of the cavity and the degree and kind of attachment which the valves have on the thinner and yielding wall.

TREATMENT OF NASAL POLYPI WITH SULPHATE OF ZINC.

To the Editor of the Medical Gazette.

Sir,

Having seen an account in the fifteenth volume of your valuable journal, of the successful treatment of several cases of nasal polypi, at the Westminster General Dispensary, by Mr. J. Copeland Hutchison and Mr. Chevalier, by the application of a strong solution of sulphate of zinc, I was induced to try it in a case which lately came under my notice, and it gives me much pleasure to be able to communicate the result to the profession. I hope the adoption of the remedy may become more general.

A young lady consulted me in the beginning of March of the present year, for a swelling in the left nostril, which, on examination, I found to be a polypus of the gelatinous kind, with a wide peduncle extending from the middle chamber of the nose far back into the posterior nares. I ordered a lotion to be applied three times a day, in the proportion of ℈ij. of sulphate of zinc to ℥vij. of water, gradually increasing the zinc to ʒj. A small piece of lint being moistened with the solution, was each morning placed round the polypus, and allowed to remain during the day. The lotion was also applied by means of a syringe.

The polypus rapidly diminished, and was completely cured by the end of April.—I am, sir,

Your obedient servant,

Wm. Hall Sawers.

5, Bermondsey Square,
June 26, 1836.

[Whether our correspondent's name be Sawers or not, we cannot positively say—the manuscript signature is so woefully indistinct. We wish some gentlemen, in favouring us with their communications, would take a little more care in writing their names: it would save our printers a good deal of trouble.—Ed. Gaz.]

HENBANE and its PREPARATIONS.

To the Editor of the Medical Gazette.

Sir,

As I observe, in the Formulary of Hospitals, translated by Dr. Ryan, an opinion set forth as mine, which is certainly a mistake, I beg you will allow me, through the medium of your respectable journal, to correct it. Dr. Ryan's statement is, that I am *of opinion that the London College of Physicians has erred in advising henbane to be collected annually — it should be biennially.* I am not aware that I ever entertained an opinion that the College had erred respecting henbane. In fact, in a paper of mine which was read before the Medico-Botanical Society Dec. 14, 1830, and which appeared

in the Medical Gazette in the same month, I asserted that henbane should be gathered according to the excellent general rule of the Royal College of Physicians, — "*postquam flores expassi fuerint; et antequam semina maturescant.*" It is to be lamented that so little attention is paid to the above rule. I cannot find any instructions of the College for the collecting of the leaves of henbane in particular; it has very justly directed that "Vegetabilia quotannis colligenda sunt, et quæ diutius servata fuerint rejicienda."—Ph. L. 1824.

I know of no plant more erroneously managed by chemists and apothecaries than henbane; the fault does not rest with the College. I rarely find the tincture prepared strictly after the College method: it is very easy for any one who has been properly instructed in pharmacy to detect the spurious tincture.

I am, sir,
Yours respectfully,
Joseph Houlton.

87, Lisson-Grove,
June 24, 1836.

MEDICAL OFFICERS OF THE GUARDS.

To the Editor of the Medical Gazette.

Sir,

Having read in your journal, of the 28th ult. a statement respecting the medical officers of one of the regiments of Foot Guards, who appear to have been prevented by an order from their commanding officer from attending a ball at St. James's, to which all the officers of the regiment were invited, I am anxious to be informed, through the medium of the party who communicated the statement to you, whether the medical officers who were subjected to this treatment have taken any measures to obtain redress, or whether they have thought fit to submit in silence to so gross and unmerited an insult.

I am, sir,
Your obedient servant,
An Army Surgeon.

June 29, 1835.

[We have reason to believe that active measures *were* taken: our correspondent, however, will most probably hear more on the subject next week.—Ed. Gaz.]

MEDICAL GAZETTE.

Saturday, July 2, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
Cicero.

THE POPULATION AND THE PROFESSION.

Those who are curious respecting the statistics of disease among the poorer classes, and the means of medical relief afforded them in this country, will receive much information on the subject from a pamphlet recently published by the intelligent senior physician of the Newark Dispensary*. In that little work, which was drawn up with a special view to the improvement of a particular establishment, there are remarks introduced on the management and results of dispensaries generally, which will be found interesting to most readers: the popular sketch of the state in which those benevolent institutions are to be met with in various parts of the provinces, will richly repay the trouble of perusal.

It is, perhaps, not very generally understood to what extent disease prevails on the average in given localities; yet the fact is among the very elements of medical statistics. However new it may appear to some persons, it is not the less true, being deduced from several distinct and independent calculations, that full a quarter of the population (without taking children into the account) are affected annually with some disorder of more or less importance, which would require the attention of practitioners of medicine. Were infants included, which they cannot exactly be for want

* Suggestions toward the Improvement of the Dispensary at Newark; with an Appendix, containing Tabular Views of the Management and Results of 20 English Dispensaries. By J. J. Bigsby, M.D., Senior Physician to the Newark Dispensary.

of proper registers, the amount of disease would seem prodigious: it would appear that nearly one-half the population of the kingdom pass annually, or would require to pass, through the hands of the medical profession.

So much being ascertained, it might be supposed that a steady ratio would be found to exist between the average quantity of disease in any district, and the number of medical men engaged in administering relief. But nothing can be more apparently anomalous than the actual facts in this respect. The disproportion in the number of medical practitioners to be found in some places as compared with others is not less than 9 or 10 to 1. For example, there is in Manchester, 1 practitioner to every 121 individuals; in the British army, 1 to every 330; in London, 1 to 345; and, according to Dr. Bigsby, in Newark and its neighbourhood, no more than 1 to every 1187 of the population.

But the idea may probably suggest itself, that where this disproportion exists, most likely the smaller number of practitioners may have the management of the larger number of patients—collected together in charitable institutions. From a very striking little table, inserted in the pamphlet to which we refer, the reverse would seem to be the fact. Observe the ratio in the following list between the population and the sick treated in medical establishments in the respective localities:—

Towns.	Population.	Sick treated in Charities.
Liverpool	165,175	42,160
Manchester	142,000	27,801
Carlisle	20,000	3,000
King's Lynn	13,000	1,500
Newark	10,000	600

Much must depend, of course, on the nature of the population; whether, for instance, it be manufacturing or agricultural—in much or little need of medical aid—and so with other considerations. Yet endeavour as we may to account for it, there will still be an anomaly remaining; and, to the eye of the philanthropist, nothing can be more alarming than the precariousness which must necessarily exist in various parts of the country as to the medical relief capable of being afforded to the classes most in need of it.

That a grievous deficiency in the means of relieving the sick poor does exist in various places is put beyond a question by the researches of benevolent inquirers. Newark, for example, yields an annual sick list of 2,500, and "hitherto," as Dr. Bigsby says, "not quite a quarter of this number have received aid from the Dispensary; 1900 sick having, firstly, paid for assistance; or, secondly, been attended by the parish surgeon; or, thirdly, relied on the private charity of the medical men of the town." And as it is with Newark, so must it be with several other towns throughout England and Wales.

There is, in these facts, much for the reflection of the legislator, and not a little for the attention of the medical profession. We see how irregularly medical labour is divided throughout the country; how it abounds in some places, while it is totally inadequate to the wants of the population in others. It may be said, that where there is chance or prospect of remuneration, there will be found a sufficient supply of professional labourers, and that it is not reasonable to expect medical men to work in localities where there is no hope of recompense. We admit it; but we maintain that the subject is deserving of the best consideration on the part of practitioners. One way there certainly is of improving the prospect, even in the most unpromising situations,—by endeavouring to extend the usefulness

of existing medical institutions; but above all, by originating or promoting the cause of those invaluable establishments, the Self-Supporting Dispensaries. We are glad to find that Dr. Bigsby sees the emergencies of the case in this light; his views on the subject deserve the special notice of all his medical brethren in the provinces.

COLLEGE OF PHYSICIANS.

ELECTION OF FELLOWS UNDER THE NEW STATUTE.

The measure recently adopted by the College met with our entire approbation: we considered it as a pledge of the liberal spirit in which the further reform of that establishment was about to be conducted; and nothing, as it seemed to us, was wanting but to put to the test of practice those principles which were now so freely avowed. This has been done. On Saturday last the new law respecting the admission of Fellows was for the first time acted upon,—that is to say, with quite as much promptitude as the circumstances of the case would allow. It will be recollected that the statute referred to was to the effect, that the Council (*Consiliarii*) should have the power annually to choose from among the body of the Licentiates a certain number to be made Fellows—provided the nomination were subsequently confirmed by the College at large. Such a nomination has just taken place: and ten physicians, resident in London, have been elected to the fellowship. Their names are as follows:—

Dr. J. R. Farre.
Sir Matthew Tierney, Bart.
Dr. Sutherland.
Dr. J. R. Hume.
Dr. J. A. Gordon.
Dr. Macleod.
Dr. Locock.
Sir William Burnet.
Dr. Hodgkin; and
Sir Charles Clarke, Bart.

Five also, non-residents in the metropolis, have been named to the same honour, viz.:—

Sir A. Crichton, late of St. Petersburgh;
Dr. Stewart Crawford, of Bath;
Dr. R. Fowler, of Salisbury;
Dr. Warner Wright, of Norwich; and
Sir Robert Chermside, of Paris.

Thus the fellowship roll under the new law receives at once an augmentation of *fifteen* names, all of which were inadmissible in the old state of things.

It would be inconsistent with the usual order of events should this election be approved of by *all* parties. Some there will be, undoubtedly, who, in the selection made, will fancy that themselves, or certain of their friends, have been most unjustly passed over; and we could ourselves name several whom we should have been well pleased to have seen in the list.

Again, we cannot help suspecting that the choice may in some instances have fallen on those unambitious of Collegiate honours. Several of them are old practitioners—some, we believe, have actually retired from business; and however becoming on the part of the College to pay them the compliment of offering the Fellowship, it can scarcely, under the circumstances, be expected that they should accept it—coupled, too, as it is, with the payment of a considerable fee.

By the present arrangement one or two objections are completely answered, which were ever uppermost with the opponents of the College. One was, that Dissenters were excluded, and that a religious distinction was thus kept up where there should be no test of the kind permitted. We cannot answer for the religious opinions of the gentlemen whose names are given above; but we have every reason to believe that there *are* Dissenters among them: one gentleman, at all events, is well known as an avowed member of the Society of Friends.

Then, again, it was said, that midwifery practice constituted an immoveable obstacle to an entrance into the College. The opinions certainly of some of the Fellows were on various occasions, and not long since, before the parliamentary committee, most strongly expressed in opposition to a change so "organic" as that of admitting accoucheurs into their order. It appears, however, that the sentiments of this *liberal* party have not been permitted to guide the councils of the College; they have been very properly overruled, and a precedent, long a desideratum, has been set for future nominations. *Two* of the Fellows elect, resident in town, are known to be among the most distinguished of our midwifery practitioners.

We cannot conclude our brief notice of these passing occurrences without once more congratulating the College, not only on the alacrity with which they have proceeded to act on their new law, but on the truly liberal spirit which their present activity evinces. The stigma of exclusiveness, grounded on religious, and we may add political, distinctions, is now removed, we trust, for ever; and that character for supineness and inaction which has so long attached to this body corporate, will, we hope, after so good a beginning, be soon wholly effaced.

It gives us much pleasure to be informed of another arrangement which affords still further earnest of the practical efficiency that appears to be in contemplation in Pall Mall. The Censors appointed for the ensuing year, are Dr. Paris, Dr. Chambers, Dr. H. Holland, and Dr. R. Bright,—constituting such a board of examiners, in point of talent and reputation, as probably it may be a long time before any similar board, in the much-talked-of University, can pretend to equal.

HARVEIAN ORATION.

The annual panegyric in honour of Harvey, the founders of the college, and all others who may seem worthy of commemoration, was delivered on Saturday last, by Dr. Kidd, of Oxford. Not a very large, but rather a select audience attended on the occasion. The orator acquitted himself in excellent style; his latinity, and the energy of his manner, procured him general applause. In some of his remarks, however, it seemed to us that he touched on ground which was perhaps not so wholly at his disposal as he appeared to think; his medical politics might probably have better been omitted; nor do we think he was very happy in that part of his address where he complimented the founders, somewhat at the expense of the present incumbents of the corporation, by holding them up as models of conduct for the latter. The historical notices of Gadesden, and some of his contemporaries, who flourished in this country previous to the introduction of the revived literature of Greece and Rome, were exceedingly well managed, and told with the audience accordingly.

Towards the conclusion, a handsome tribute to the late Dr. Pelham Warren was introduced. Next year, we understand that Dr. Haviland, of Cambridge, is to be the Harveian orator.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Friday, June 7, 1836.

Henry Earle, Esq. F.R.S. in the Chair.

This was an Extraordinary meeting of the society, appointed for the purpose of bringing the business of the session more satisfactorily to a close. Several distinguished foreigners were elected Honorary Fellows,—among them, Tiedemann, Tommasini, Orfila, Edwards, Decandolle, Eckstrom, Dr. Physick, and Baron Von Humboldt. Sir David Brewster also, Sir William Hooker, Dr. Dalton, Professor Sedgwick, and Dr. Buckland, were elected as native Honorary Fellows.

The first paper read was entitled,

A Case of Strangulated Femoral Hernia, presenting some peculiarities in the external characters of the Tumor, and the disposition of the Sac. By Geo. Macilwain, Esq.

In some introductory remarks, Mr.

Macilwain notices the principal anomalies hitherto observed in the structure and disposition of hernial sacs — such as *thickening*, affecting the neck or body of the sac, sometimes to the extent of half an inch; *adhesions* between the sac and its contents; the *quantity of fluid* contained; the occasional division of the sac into *cysts; adventitious membranes* in the interior; &c. The case forming the subject of the paper is briefly this: A woman, aged 43, labouring under strangulated hernia, applied to Mr. M. for assistance. The usual symptoms were present. She had worn a truss for three months previously, but for the four or five days preceding her application for surgical aid, she had been unable to replace the hernia, which had come down. The tumor was scarcely as large as a walnut, yet it was more raised above the crural arch than might have been expected in a femoral hernia of that size, and did not exactly incline towards the inguinal aperture. It was very moveable, nor was it remarkably tender on pressure. The taxis was tried, but in vain: so that an operation seemed to afford the only chance, and this was accordingly performed. On dividing the fascia propria, which was densely lined with fat, the sac presented a peculiar appearance. It seemed filled with fluid, but nothing like intestine or hernia of any kind could be felt through its parietes; the colour of the part, however, could not be mistaken. The interior proved to be a true sac, containing an unusual quantity of water. The hernia was very small, but tightly strangulated. After the operation, the patient was kept quiet in bed, had no medicine, but was allowed some weak gruel occasionally. The bowels acted ere long, and the symptoms subsided. In the course of a few days the woman was well.

The next communication was one of considerable length, having for its title,

Observations on some Tumors of the Mouth and Jaws. By Robert Liston, Esq.

Mr. Liston begins with some general remarks on the novel and bold operations had recourse to of late years for diseases of the jaws. His object, in the present paper, is "to point out the characters by which those tumors which may with safety and propriety be interfered with, may be discriminated from those affections, on the other hand, which no conscientious or well disposed surgeon ought or would think of touching with a knife."

The parulis and spina ventosa of the jaw, containing generally a purulent secretion, often attain an immense size, and have their origin very frequently in alveolar abscesses about the roots of decayed teeth. They cannot be got rid of without an operation.

The epulis, a solid growth from the gum, often attains a troublesome and alarming size; the teeth become loosened. The seat of epulis is generally in front of the mouth, and in the lower jaw. It may be sometimes traced to the bruising of the gum by awkward instruments used by dentists. These tumors are not usually malignant, though they may occasionally degenerate and become so.

From the periosteum of the root of the teeth sometimes arises a disease of a troublesome nature. A soft vascular growth proceeds from the apex or side of the fang, by which the gums are swollen out, and formed into a tumor investing the teeth. A sanious discharge flows from the fungous mass, which bleeds on the slightest touch. Examples of this form of disease are frequently met with.

The disease called *osteosarcoma* is improperly so designated. The bone is affected in general only secondarily. It is not a tumor of bone, or a conversion of it into flesh or pulpy matter. The march of this disease is usually exceedingly rapid: some tumors of the kind are soft and brain like, malignant from the first, but growing slowly, and without any great tendency to bleed.

Tumors composed of erectile tissue have been found in the antrum; but this sort is rare compared with those of the encephaloid character.

It happens now and then that the superior maxilla is involved in a tumor, of a more simple and manageable nature, commencing in the osseous structure or the periosteum. Some rare cases, also, of extensive deposit of very hard osseous matter in the cavities and fossæ of these bones, are occasionally met with. These *fibrinous* tumors (as they have been called) are generally owing to some external injury, and are of comparatively slow growth. They are more usually found in connexion with the lower jaw than the upper. Both in consistence and form they differ from all those diseased structures already mentioned. They attain a large size, are of a globular form, displaying the surrounding soft and hard parts, and giving rise to great deformity. The skin may be thinned and pervaded by enlarged venous branches: it is discoloured, but not incorporated, even in an advanced stage, with the morbid mass, nor are any of the surrounding tissues contaminated. The projection towards the mouth, often large and passing down by the side of the opposed teeth and jaw, is hard and elastic, and conveys the feeling of brawn, interspersed with bony particles; but it is covered by a continuation of the mucous

lining of the cavity, slightly thickened and altered, furnishing an inconsiderable discharge, and that neither offensive nor of a bad quality. It obscures (when the upper jaw is involved) the view of the velum palati and fauces, and by impeding respiration makes the patient very uncomfortable, renders his supply of nourishment very incomplete, and even puts his life in jeopardy.

From a consideration of the cases on record as having been surgically treated, as well as from his own experience, Mr. Liston is induced to believe that tumors of the tractable nature just described are not often to be met with. Fifteen cases of extirpation of the whole, or greater part, of the superior maxilla, have been laid before the profession. In 11 of them the patients died either from the immediate effects of the operation, or from a return of the disease. In two of the four reported to have been cured, the tumor is said to have been soft, and probably of a bad kind. In short, one case alone out of the fifteen appears to have been, at the period when interfered with, very favourable for the operation: the tumor resembled that just now described.

In the course of his practice, Mr. Liston has been fortunate enough to meet with several cases of the simple or fibrinous kind; these he operated upon successfully, and with a most satisfactory ultimate result. An account of these cases, with descriptions of the tumors before and after their removal, forms the body of the present paper.

With regard to the different kinds of operations which have been adopted, and those which seem most deserving of being recommended, Mr. Liston observes, that removal of the teeth involved is in the first place necessary, and has often been attended with spontaneous subsidence of the mischief. "An incision should be made with a strong pointed knife, so as to surround the base of the tumor, and wide of the morbid structure. When the alveolar processes are involved, these must be cut away with cross-cutting forceps, and if to any depth, perpendicular sections should previously be made on each side of the mass with a fine saw. When there is reason to dread that the structure is at all of a bad kind, when unsuccessful operations have been previously practised, besides the free excision, it will be advisable to apply either the actual or some potential cautery to the exposed substance, after the oozing of the blood has ceased."

Professor Lizars it was who first suggested the possibility and advantage of removing the entire superior maxillary bone, when diseased. M. Gensoul performed the first operation of the kind, the year after (1827). But both these gentlemen appear to be too sanguine as to the efficacy of the operation, in ridding patients of *malignant* disease. "Whenever the morbid growth," says Mr. L., "has made its way through the parietes, when even a soft polypus looking growth has resided but for a short time in the corresponding nostril, furnishing a copious, thin, and fœtid discharge, and connected with the encephaloid tumor of the antrum, then there is a certainty of the disease repullulating from the parts which surrounded the original nidus of the mischief. The surface may heal over the cavity, may appear to be healthy, and contract for a short period; but all the hopes of the patient and surgeon will soon be blasted by the appearance of a new and rapidly increasing fungous mass."

The operation for extirpating more or less of the superior maxilla has fallen somewhat into disrepute, owing chiefly, as it would seem, to the indiscriminate and injudicious selection of cases made by the operators. It is certain, however, that disease of a very malignant character may be remedied by extirpation, if practised in the earliest stage. Mr. Liston relates the particulars of an interesting case of this kind, of which he was fortunate enough to make a complete cure.

Three other successful cases are related at some length: the disease had assumed in each of them a formidable appearance; the result was highly gratifying and satisfactory.

The only precaution against hæmorrhage adopted by Mr. L. during the operation, is pressure on the common carotid of the affected side. Some of his patients lost no more than 8 or 10 ounces of blood altogether; very few vessels required ligatures; in one case none were tied. The principal instrument employed by Mr. Liston in performing the operation is the cutting forceps, which is now generally adopted on his recommendation; it divides the processes of the superior maxillary and malar bones with as much ease as a fine scissars would a split straw. With this forceps the work is done rapidly and certainly. The *osteotomes* (as they are called) are complicated machines, and not easily limited in their action to the hard parts; and as to the chisel and mallet, Mr. Liston wholly repudiates them. "If one were desirous," he says, "of protracting an operation and adding to the patient's sufferings, of jarring the bones of the face and head, and jumbling their contents, no more effectual means could by any possibility be contrived."

Portraits and preparations illustrative

of the most important parts of the paper were exhibited.

The reading of Mr. Liston's paper being concluded, *a Case of removal of a portion of lung which protruded through a wound in the abdominal parietes*, was read: it was from the pen of W. M. Ford, Esq., assistant-surgeon to the 72nd regiment, communicated by Sir J. M'Grigor. The patient recovered, almost without an untoward symptom.

The titles of several other papers were then read, there not being time to go through them at length: after which the Society adjourned till the commencement of next season.

SIR PATRICK DUN'S HOSPITAL.

CLINICAL LECTURE

ON

DELIRIUM TREMENS,

AND ITS TREATMENT BY TARTAR EMETIC AND OPIUM.

By Robert Law, M.D.
One of the Physicians in Ordinary to the Hospital.

Delivered June 18, 1836.

Origin of this method of Treatment—Pathological Views of the Nature of the Disease which suggested it — Subsequent application of this Method to similar Delirium occurring in other Diseases.

Gentlemen,—I am axious to direct your attention to the case of John Jackson, whom we have recently had under treatment for delirium tremens, and who has been dismissed cured.

The subject of the case was a strong athletic man, aged 40, a publican. He had already had the disease four times; and about eight months since was my patient in this hospital. His appearance, when he last applied for admission, was so altered, that if it were not that there was something peculiarly striking in him, so that under no circumstances could he be mistaken, I should hardly have recognized him. His face was bloated, and he was reported to have had no sleep for five nights,—a statement which his exhausted worn-out appearance seemed quite to confirm. He was said to have been attacked six days since with convulsive fits, in which he worked violently, and which came on at short intervals. This was a feature of the disease which no preceding attack had exhibited.

The symptoms present on admission were the following:—Pulse 112, soft; eyes not much suffused; head rather hot; a general tremor of the body. Tongue large, flabby, indented and jagged at the edges, having evidently suffered during the epileptic paroxysms. He had the peculiar fidgetty manner and gesture which so strongly characterize the disease; still his answers to questions were so coherent and consistent, that he would easily have induced one who did not know him to believe that he was in his right mind.

℞ Misturæ Camphoræ, ℥vj.; Tartari Emetici, gr. iv.; Tincturæ Opii, ʒj. M. sumat unciam 3tiis horis. Shower bath at night.

May 14th.—Had no sleep during the night, nor did he remain in bed, but was up in search of something through the ward. He had a convulsive fit in the night, in which he worked violently for ten minutes. The medicine caused no nausea or sickness; pupils contracted; abdomen tympanitic. He has lost much of the general tremor with which he was affected, but has an uneasy restlessness. Although his mind seems quite astray, he remembers having been under my care before, and also the subject of his delusion upon that occasion.

℞ Misturæ Cardiacæ*, ℥vj.; Tartari Emet. gr. viij. M. sumat ℥j. 4tis horis.

Hirudines xij. pone singulis aures. Lotio frigida fronti. Enema Terebinthinæ vespere. Foveantur crura.

15th.—Slept quietly through the night; pulse 108; skin soft; mind still astray; medicine produced no nausea.

Repetatur mistura.

16th.—Slept quietly, without delirium; he seems quite collected and rational.

Omittatur Mist.

17th.—Had not so tranquil a night as the preceding.

℞ Tart. Emetici, gr. viij.; Decoct. Hordei, ℥vij.; Syrupi Limonum, ℥j. M. sumat ℥j. 4tis horis.

19th.—Although his mind is quite collected, yet he has had no sleep for two nights; he seems peculiarly wakeful.

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* The following is the formula of the Cardiac mixture :—

℞. Mist. Camphoræ, oz. vj.
Carbonatis Ammoniæ, dr. j.
Spir. Ætheris Nitrici, dr. iij. M.

℞ Muriatis Morphiæ, gr. ij.; Syrupi Lim. ℥ij.; Aquæ, ℥iv. M. sumat ℥j. 3tiis horis ad somnum.

8 o'clock, P.M.—Delirium has become very violent; he is in a state of extreme agitation, haunted by the idea of distress in business, and of having his bills protested.

℞ Mur. Morphiæ, gr. ij.; Tart. Emet. gr. xij.; Syr. Limonum, ℥ij.; Aquæ, ℥iv. Sumat ℥j. 2dis horis.

You observe here, gentlemen, that we were too precipitate in discontinuing the tartar emetic, and should have done better had we associated the morphia and it before, as we may conclude from the success of its after application.

20th.—Since he has taken the mixture he has been free from delirium, and has slept quietly. There seems sufficient fidgettiness of gesture to make us continue the medicine.

22d.—Is now quite composed; in fact he is convalescent. His only complaint is of aching in his limbs.

To make assurance double sure we continued the medicine for two days longer; a precaution, of the utility of which we have had frequent experience. When Jackson had been our patient before, we ascertained to what extent we had need to push our measures to make an impression on his disease. We believe we had never given both the tartar emetic and opium more largely before.

The case I have just detailed to you affords me an opportunity of bringing under your notice a mode of treating this remarkable disease, which *I was the first to employ*, and the success of which, witnessed in my hands, and communicated to others who have had ample means of testing its value, has led to its general adoption.

In order to explain to you what led me to employ the combination of tartar emetic and opium in delirium tremens, I shall briefly advert to the history of this disease.

It came under notice at a time when pathology recognized no other mode of disease but inflammation: in fact, inflammation was regarded as the *punctum saliens* and *ultimum moriens* of disease, and, of course, treatment contemplated only the subduing of inflammation. It is not remarkable, when we reflect how closely the symptoms of delirium tremens often resemble those of arachnitis, that it should be expected that the same treatment would suit both; but the signal failure which attended the antiphlogistic treatment applied to delirium tremens, soon proved, that, however it and arachnitis might appear to resemble each other, there existed between them a substantial difference. About this time, the highly interesting and truly valuable observations of Mr. Travers, on "Constitutional Irritation," appeared, and gave a new and extended direction to pathology. They exhibited how prominent a part the nervous system plays in the work of disease, and that although the features which characterize the affections of this portion of the economy are, from their nature, less within the scope of our recognition than those of the affections of the vascular system, still that they have not less their existence in nature, and that many of the phenomena of disease in vain sought explanation in the exclusive affections of the vascular system. Mr. Travers was certainly the first to distinguish between irritation and inflammation, to fix the limits of each when they admitted of being fixed, and to show that they often so implicated each other that they could not be distinguished.

These views awakened the suspicion that this remarkable disease, for whose treatment antiphlogistic means had been found so signally inefficient, consisted more in an affection of the nervous than of the vascular system, and that its appropriate remedial agents would be found rather among those whose influence is exerted on the nervous system than the vascular Experiment confirmed the surmise. Opium was employed, and with a degree of success as signal as was the failure of the treatment which was based upon the view of its purely inflammatory nature. Opium, then, was regarded as the appropriate remedy of delirium tremens, irrespective of its modifying circumstances, and was accordingly employed in all cases, no matter how these cases might exhibit individual differences; and as medicines are looked upon in some degree as tests of the nature of a disease, the success of opium fixed the nature of the disease to consist, not in inflammation, but irritation—not in an affection of the vascular, but the nervous system. These views prevailed upon the nature and treatment of this disease when we first came to treat it. Among many cases which we had an opportunity of observing and treating, we found that this view of its nature was true, but that it did not go sufficiently far. We found some cases terminate fatally in an alarming short time, although, a very few hours before, there were no symptoms to excite a suspicion of approaching danger. Among these were cases which, during the day, scarcely exhibited any derangement or mental aberration, yet, at the approach of night, became so violent as to require to be placed under restraint. When we came to examine the body after death, we

invariably found the cerebral venous system very much congested, and a section of the organ unusually dotted and vascular. One of the first of these cases which came under our notice, and which made an impression that could not easily be effaced, was that of a young man, whose consistency of manner and coherency betrayed so little mark of the disease, that we admitted him more on the representations of his friends than from any symptoms then present; and holding in mind how often the disease is, as it were, in abeyance during the day to break out with aggravated violence at night. He became so violent at night as to require to be placed in a separate apartment. A strong man could scarcely hold him in bed. He made a violent effort to get up, but was resisted by his night watch, who left him, supposing he had become quiet and disposed to sleep, but on his return after two hours he found him dead. The examination of the body exhibited the veins of the head gorged with dark fluid blood, which gushed out in large quantities. Connecting this extreme case, and several others which exhibited minor degrees of congestion, and also from the analogy of other cerebral affections exhibiting themselves in paroxysms, consisting, partly of symptoms indicating irritation of the organ, and partly of symptoms bespeaking congestion—viz epilepsy, catalepsy—in which the convulsion is very commonly followed by a state approaching to coma, — we were led to regard this disease as composed of symptoms partly indicative of irritation and partly of congestion,—that the symptoms denoting irritation preceded, gave rise to, and in some cases altogether merged into those denoting congestion; that in other instances the irritative and congestive symptoms discover themselves nearly at the same time, and proceed *pari passu*, each retaining its peculiarity of feature; that a third class of cases seemed to depend exclusively upon the affection of the nervous system, without the vascular being involved—at least, if it were involved, the other symptoms were so prominent as to cause them to be overlooked; we further noticed, that in some instances an alarming narcotism followed a comparatively small dose of opium, which we attributed to the remedy, instead of quieting the irritation, co-operating with its natural tendency to terminate in congestion.

These considerations, while they suggested to us that the change of opinion on the nature of this disease was too complete, and that it would have consisted more with its real nature to have set down the symptoms partly to the score of inflammation, and partly to that of irritation, also suggested to us the selection of a remedial agent, which, being associated with opium, would either prevent the congestion, or when it arose would control it. Tartar emetic at once occurred to us as the medicine possessing the properties requisite to fulfil the objects we had in view. It was calculated to meet those features of the disease in which it most resembled arachnitis, and admitted of a degree of management of which bleeding was not capable. We combined it with laudanum, and apportioned the quantity of each ingredient of the combination to the degree in which the indications of irritation or congestion predominated. When they seemed to co-exist, and, as it were, in an equal degree, the ingredients of the combination were adjusted accordingly; when the irritation seemed to exist alone, or, if there were any congestion, it was so inconsiderable as scarcely to show itself, a mere fraction of tartar emetic was admitted into the combination, the opium being proportionate to the irritation; when again, the congestive symptoms were so prominent as to mask those of irritation, then the tartar emetic was employed nearly or altogether to the exclusion of the opium. We had often occasion to witness the congestive symptoms follow so rapidly on those of irritation as to appear to be the original symptoms; and, again, we have seen the symptoms of irritation appear after a distinctly appreciable interval, losing themselves altogether in the congestive symptoms.

We have now had several years' experience of this treatment successfully applied to delirium tremens, however and whenever presenting itself; we have also applied, and successfully applied, it to the analogous delirium occurring in erysipelas, in scarlatina, and measles, and also in fever, whether that fever were petechial or not. As we claim to have been the first who employed tartar emetic and opium in delirium tremens, we equally disclaim any obligation to any one's suggestion for the extension of its application to the delirium in fever. We are free to confess that we employed it more frequently in the delirium of fever, and that of spotted fever, within the last two years, than we ever did previously; but the reason was, that the fever which then prevailed, and has prevailed till very lately, exhibited the unusual association of high cerebral excitement, with the skin covered with petechiæ. While that fever prevailed, especially in the spring of 1835, we had many cases which we should find it difficult to say whether they deserved to be regarded more as cases of delirium tremens, or as

cases of fever, so close was the analogy of the symptoms; and in some we had to establish the differences upon the presence or absence of the petechiæ. We have accumulated a large number of cases illustrative of this treatment of delirium tremens, as also of this treatment applied to the same character of delirium occurring in other modifications of disease, and should have willingly given them publicity before, through the medium of the Dublin Medical Journal, but could not procure space. These cases exhibit to what an extent either or both of the ingredients of the combination may, and must be pushed, in order to insure their effect. They also show how an alteration of the symptoms in the same case will call for a modification of the treatment. They further strikingly show that the medicines must not be hastily discontinued, even though the excitement may appear to have subsided. The most remarkable cases were some which we treated in the spring of 1835; they were cases of fever, many of which, although marked by other symptoms of a sthenic type, presented the surface thickly covered with petechiæ. Their striking feature, and which called for the employment of the treatment to which we have alluded, was the sudden and unexpected coming on of violent delirium, and which in some instances required the patient to be placed under restraint. Tartar emetic in full doses here exerted a powerful influence. Erysipelas, especially affecting the head, and producing either violent or low muttering delirium, prevailed very much at the same period. We apportioned the quantity of tartar emetic in these cases to the type of the fever: we often experienced the advantage of a very minute quantity administered in cardiac mixture. It also has occurred to us more than once to have been obliged to give tartar emetic and opium largely, early in the fever, then to give wine or other strong stimulants, to meet a subsequent collapse, and after that, especially when erysipelas accompanied by delirium came on, either spontaneously, or from a blister applied to the nape of the neck, to exhibit tartar emetic in fractional doses in a cordial stimulant menstruum. Thus have we met, as it were, different types of the same disease in the same individual, but occurring at different periods. Such cases demand especial care. We have witnessed the larger dose of tartar emetic, which suited the early stage, and before the strength had been much drawn upon, produce an alarming prostration when given in the more advanced stage, when the disease had already sapped the strength. We have seen also, as we have already remarked, a smaller dose of opium produce congestion and narcotism than we could account for in any other way than that it fell in with the natural tendency of the symptoms of irritation, to end in congestion. Thus while the combination of tartar emetic and opium admits of almost infinite modification by varying their proportions, it requires a nicety of application and adjustment, which a close observer of symptoms can alone direct.

We are spared the necessity of expatiating more largely upon the merits of this compound; they have already been recognised, and been tested by experience.

DETECTION OF SUGAR IN THE BLOOD IN DIABETES,

AND ON THE

BEST MODE OF SEPARATING THE SAME SUBSTANCE FROM THE URINE.

By Felice Ambrosioni,
Of Milan.

It is well known that until very lately the most distinguished British and foreign chemists have failed to detect the presence of sugar in the blood of diabetic patients. This, however, has been recently effected by the author of the memoir of which we shall give an extract, and also, we believe, by some other continental chemists. If this does not prove to be only an exception to the general rule,—and we confess we are sceptical on the point, on considering that such eminent men as Guendeville, Nicolas, Wollaston, Henry, Marcet, and Prout, failed to detect any trace of sugar in their experiments,—the discovery will occasion a great change in our views respecting the pathology of diabetes. It will lead to the conclusion, that in diabetes, as in other diseases, the office of the kidneys is chiefly to act as filters to the blood, by removing effete and unassimilated matters; also that the disorder does not not reside in these organs, and consequently that our remedies must be directed to the improvement of the other functions. The following are Signor Ambrosioni's processes for detecting the saccharine principle in the blood and urine. It is proper to observe, that the discovery was made only in a single case; and it may not be uninteresting to mention that the case was cured by the use of creosote.

I.—*Analysis of the Blood.*

To obtain sugar from the blood, one pound of the serum and crassamentum from the same patient was diluted with water boiled and filtered. The filtered liquor was deprived of its colour by subacetate of lead, and a stream of sulphuretted hydrogen threw down from the mixture a black pultaceous mass, which diluted with

distilled water, and filtered, produced a dark brown liquor, which was boiled in a solution of albumen. As the albumen coagulated, the liquor separated into a clear colourless fluid and a dark flocculent and insoluble matter. The fluid portion, when boiled slowly, threw up a syrup scum, and assumed all the characters of a perfect syrup. Left at rest for a few weeks, small colourless crystals were formed in it of a prismatic form, with a rhomboidal base, modified at the angles and apices, in every respect resembling a perfect sugar. The uncrystallized syrup, at about 86° F., mixed with a little yeast, exhibited a decided vinous fermentation. The quantity of syrup obtained from one pound of blood was about an ounce; the crystals weighed two grains. [Since the foregoing was transcribed for the press, a case has been published in the MEDICAL GAZETTE, No. 131, in which sugar was detected in the blood by Mr. Maitland.]

II.—*Analysis of the Urine.*

The process employed in the reduction of sugar from the urine is as follows: The urine, which was pale, void of urea, and contained few salts, was treated with subacetate of lead, the oxide of which was precipitated, combined with the animal and colouring matters, and a few salts. Sulphuretted hydrogen, passed through the filtered liquor, removed the excess of the salts of lead, which formed a brown precipitate, the liquor remaining clear, and consisting of water, sugar, and a minute portion of animal matter. Evaporated in a water bath to a syrup, and left for some weeks at the ordinary temperature, a white efflorescence beginning at the sides of the vessel, gradually extends over the whole, and converts it into a solid, whitish, amorphous mass, which, when broken, exhibits distinct traces of crystallization; and, when washed with pure alcohol, is freed from the animal and colouring matters, and remains undissolved in the form of a pure white sugar.—*Ann. Univ. di Med.*—*British and Foreign Medical Quarterly Review*, July 1836.

ON THE EFFECTS OF BOILING MEAT AND VEGETABLES.

By M. CHEVREUL.

[IN a report read before the Academy of Sciences, by M. Chevreul, who was appointed with others to examine the nature of soup sold in Paris under the name of "bouillon de la Compagnie Hollandaise," the results of experiments on boiling food in different ways are introduced, which convey some important dietetic hints.]

If meat is boiled in distilled water in which 1,125 of its weight of common salt is dissolved, it will be more tender and have more taste, whilst the decoction will be equally more sapid and more odorous, than if the well-water of Paris, which contains sulphate and carbonate of lime, had been employed. The sulphate of lime exercises a singularly unfavourable influence on the tenderness and savour of the meat, and odour and savour of the broth. If, however, the distilled water is saturated with common salt, the meat becomes more hard, with a particular taste analogous to ham, and the broth less odorous and sapid.

The mode of boiling influences the results. Thus, two pieces of meat of equal size, &c. were chosen: one was put in an earthen pot with a given quantity of cold distilled water, and the temperature gradually raised to ebullition, and maintained at the boiling point for five hours; the other was plunged into the same quantity of boiling water, and boiled also for five hours. The taste of the broth made from the meat placed in boiling water was unanimously pronounced, by ten persons, to be inferior to that made from the meat placed first in cold water; and, on concentrating and analyzing the former, it furnished only 10·1000 organic matter, and 2·1000 fixed salts; whilst the latter furnished 13·1000 organic matter, and 3·1000 fixed salts. On the other hand, 500 grains of meat boiled gradually was reduced to 326 grains, and to 3 gr. 25 of fat which could be separated; whilst 500 grains of the meat plunged at once into the boiling water, was only diminished to 375 grains, containing almost all the fat. This is owing to the albumen and fibrin of the outer surface being hardened immediately by the sudden heat, before they could be dissolved, and thus forming a sort of coating which opposed the free penetration of the water into the interior of the meat. During the ordinary boiling of meat, the albumen is dissolved before the temperature of the water is elevated to that degree at which the albumen coagulates; when the temperature is sufficiently elevated, all the albumen is cooked, and is reduced partly to an insoluble solid, coloured slightly with hematosine which forms the scum, and partly to a soluble portion which remains dissolved in the water. The cellular tissue, which penetrates all parts of the meat, and particularly that which envelops the fat, together with the tendinous tissue, is changed into two parts: one, which consists of gelatine, dissolves; the other remains in a solid state, more or less soft and swollen, and is commonly called the nerve. The muscular tissue, essentially

composed of fibrin, becomes at first hard, like the albumen, but none of it dissolves; so that, if albumen, gelatinous tissue, stearine, and oleine, were not interposed between its parietes, the muscular tissue would be too stringy to be thought highly of as nutriment. The fat, formed of oleine and stearine, is not changed; one part remains in the meat, and another swims on the broth. The principle which imparts the predominant odour to the meat, the sulphurous product, the amber-smelling principle, (an unnamed acid, more or less analogous to hircic and butyric acids); the volatile acid, analogous to acetic acid; all of which are obtained by the distillation of meat, appear to be formed by a new state of equilibrium, which is established between the elements of one or more principles immediately soluble in water.

The changes produced in boiling some vegetables are worth attending to. From the red cabbage, and probably all its varieties, when boiled in distilled water, is disengaged an odorous principle proper to many Cruciferæ, which blackens paper impregnated with acetate of lead, from its containing sulphur, and some ammonia. The turnip and parsnip give out a similar principle, but containing less sulphur. The burnt onion exhales a volatile oil, containing more sulphur than the volatile principle of the cabbage, and some ammonia. From the carrot is disengaged a strongly odoriferous principle, accompanied by ammonia, but not acting on acetate of lead. The same vegetables, boiled in distilled water, containing 1,125 of its weight of common salt, exhale the same products, but the odour of the carrot smells sweeter, and that of the Cruciferæ stronger. The pure water in which these vegetables have been boiled retains in solution a sensible quantity of the odoriferous principles of the carrot, onion, and parsnip, as well as the colouring matter, &c. The salted decoction smelled more strongly than the other; its taste was also stronger (not taking into account the taste given by the salt,) and yet it contained less extractive matters, in the proportion of 1 to 1·4. It may therefore be concluded, that the salt develops and increases the sapidity of the matter extracted. The vegetables themselves are much more tender and sapid when boiled in water thus salted, than in pure water. The onion, when boiled in pure water, is inodorous and insipid; when boiled in salted water, it has a sweet taste and marked aroma. Water, therefore, containing 1,125 of its weight of muriate of soda, is more proper than pure water for boiling these vegetables: first, because the addition of salt renders the water less capable of taking up the soluble matters; and, secondly, because it gives the vegetables more tenderness, odour, and taste.—*Journal de Pharmacie, &c.*; *British and Foreign Medical Review*, July 1836.

A NEW DIAGNOSTIC SIGN OF PREGNANCY.

By Professor Kluge, of Berlin.

Dr. Sommer, of Copenhagen, informs us, in the journal of which he is one of the editors, that Dr. Kluge, professor of midwifery in Berlin, considers as a *sure test* of pregnancy *a bluish tint of the vagina*, extending from the os externum to the os uteri. According to Dr. K., this discoloration commences in the fourth week of pregnancy, continues to increase to the period of delivery, and ceases with the lochia. The only condition considered as likely to vitiate the test, is the existence of hæmorrhoids in a very marked degree. Dr. Sommer convinced himself of the presence of this particular colour in pregnant women, under the direction of Professor Kluge

[If the validity of this sign should be established, of which we take leave to doubt, its importance in certain cases must be admitted, when we consider the difficulty, not to say impossibility, of detecting pregnancy in its earliest period. It is at least evident from this, as from a thousand other indications, that the employment as well as the estimation of *physical signs* is daily increasing.]—*Journal for Medicin og Chirurgie. British and Foreign Medical Review*, July 1836.

USE OF ERGOT IN INDUCING ABORTION.

By Dr. Weihe.

A woman, aged 36, pregnant with her sixth child, in the fourth month of her pregnancy, was attacked with uterine hæmorrhage. After this had continued most violently for three days, without any appearance of expulsion of the fœtus, and when the woman was apparently dying from loss of blood, Dr. Weihe, with the view of inducing more speedy miscarriage, ordered eight grains of ergot of rye to be given every half-hour. After the third powder was taken, labour-pains came on, and she had scarcely taken the fourth before the fœtus was expelled. The patient fainted, but soon recovered: the hæmorrhage ceased immediately, and she gradually recovered, although she remained exceedingly weak for a long time.—*Bibliothek for Lager. British and Foreign Medical Review*, July 1836.

EVENING MEETINGS AT THE COLLEGE OF PHYSICIANS.

THE last of the *conversazioni* for the present season was held on Monday evening; Sir Henry Halford presided as usual, and an interesting paper from the pen of Dr. Paris was read—a biographical sketch of the late Dr. Maton.

COLLEGE OF SURGEONS.

LIST OF GENTLEMEN WHO RECEIVED DIPLOMAS IN JUNE.

John Y. Wood, Gloucester.
Thomas A. Richards, Epsom.
John M. Morris, Burslem.
William Paine, Dublin.
John Kenny, Ireland.
Thomas Holmes, Dunmanway, Cork.
John W. Miller, Cork.
Henry Churchill, Doddington, Oxon.
Henry F. Prosser, Gloucester.
Robert Hamilton, Clonakilty, Cork.
Henry Warren, London.
Henry Clinton, Croydon.
George A. H. Capes, Castle Hadingham.
Thomas H. Payne, Frome.
Charles Collambell, New Kent Road.
Thomas Cowdry, Bath.
Henry French, Bungay.
Sidney Browne, Dublin.
Robert Walker, Cupar, Fifeshire.
Chas. W. W. Penruddock, Christchurch, Hants.
Maurice S. Barton, Market Rasing.
William H. Swallow, Halifax, Yorkshire.
James T. Metcalfe, Marsham, Yorkshire.
Richard Henry, Dublin.
Caleb B. Rose, Swaffham.
John Anderson, Cruden, Aberdeenshire.
Edward William Stow, Carlow.
Henry Blenkinsop, Warwick.
Joseph Welsby, Prescot
Thomas R. H. Thompson, Isle of Man.
Edward P. Davies, Newington, Kent.
Luke Barron, Co Waterford.
John Dunn, E. J.
Robert Blyth, Colchester.
John Hilton, Charterhouse Square.
Andrew G. Brookes, Much Wenlock.
James R. Higgins, London.
William Moorhead, R. N.
John Seden, Bath.
Gurney Turner, Yarmouth, Norfolk.
John D. Bishop, Caln.
Henry G. Bowra, Islington.
Henry Wilson, Runcorn, Cheshire.
George Ball, Worcester.
Wm. Spink, Leeds.
Thomas G. Jenkins, Monastereven.
Henry Keate, Shrewsbury.
Thomas Griffiths, London.
Isaac Byerley, Liverpool.
Chas. H. Silvester, North Brixton.
Wm. E. Ponten. Ludgate Hill.
John G. Treacher, Swansea.
Wm. L. O. Moore, Madras.
Charles Studd, London.
James Ratton, University Street.
Wm. S. Lambert, Sunk Island, Yorksh.
George A. Cowper, E. I.
James Thomas, Newcastle Emblyn.
John Niell, Castle Street, Falcon-square.
Montague Grover, London.
James Steel, Shipley, Yorksh.
Rowland Atcherley, E. I.
William Rowland, Oxford Terrace, Edgeware Road.
William M'Quaid, Lisdau, Co. Cavan.
Charles Thatcher, Bombay.
Benjamin Barrow, Bath.
Robert John Bell, Hull.
Frederick Walter, Worcester.
Isaac Barnes Murcott.
John Owen.
George F. Barnes, New York.
Arnold Coles, Woodstock.
Edward Stokes Leete, Thrapstone.
William White, London.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

June 23, 1836.

Thomas St. John Hudson, Cork.
Thomas Smith, Cheltenham.
Samuel Hodgson, Halifax.
Thomas Heron Keown, Down, Ireland.
Henry Wilkins, Cosham, Hants.
James Parsons Knott, Bradford, Yorkshire.
Elliot Boyle Davies.
James Walton, Hollins, near Halifax.
Robinson Elsdale, Spalding, Lincolnshire.
Edward Edlin.
William Baly, London.
Francis Irwin, Ebbs Vale, Brecon.

June 30.

William Ebden, Fressingfield, Suffolk.
Frederic Osmond Hyde, Aller, Somerset.
Robert Wilson.
William Middelton White.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *June* 28, 1836.

Age and Debility	24	Inflammation	11
Apoplexy	3	Bowels & Stomach	1
Asthma	2	Brain	6
Childbirth	1	Lungs and Pleura	6
Consumption	27	Liver, diseased	4
Convulsions	25	Measles	5
Dentition or Teething	6	Mortification	1
Dropsy	14	Paralysis	2
Dropsy on the Brain	8	Scrofula	2
Fever	5	Small-pox	10
Fever, Scarlet	4	Thrush	1
Fistula	1	Venereal	1
Gout	2	Worms	1
Heart, diseased	2		
Hooping Cough	6	Casualties	4
Indigestion	1		

Decrease of Burials, as compared with the preceding week . . . 43

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

June, 1836.	THERMOMETER.		BAROMETER.	
Thursday . 23	from 53 to	68	29·76 to	29·74
Friday . . 24	51	69	29·74	29·69
Saturday . 25	47	64	29·92	30·02
Sunday . . 26	48	69	30·13	30·19
Monday . . 27	49	70	30·22	30·13
Tuesday . . 28	47	82	30·04	30·08
Wednesday 29	47	74	30·20	30·22

Prevailing winds, S.W., S. by E., and N. by E.
Generally clear, except the mornings of the 23d, 24th, and evenings of the 25th and 27th; rain on the 23d, 25th, and 27th; a storm of thunder and lightning, and heavy rain and hail, from 4 to ten minutes after 5 on the afternoon of the 24th.
Rain fallen, ·2125 of an inch.

CHARLES HENRY ADAMS.

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, JULY 9, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XLI.

I proceed now to the examination of

DIVISION II.—FLOWERING PLANTS.

These are distinguished from the plants described in the last lecture by the possession of sexual organs, viz. stamina and pistilla; and, from this circumstance, they are denominated *sexual*, *phanerogamous* from φανερος, manifest, and γαμος, marriage) or *phænogamous* (from φανος, apparent) *plants*. As already mentioned, they were at one time supposed to possess exclusively spiral vessels, and hence the term *vasculares* was applied to them. They possess seeds, each of which contains an embryo, composed of one or more cotyledons, so that they are in consequence called the *embryonatæ* or *cotyledoneæ*.

Mr. Lindley* thus divides sexual plants into four classes:—

Plants propagated by sexes	having spiral vessels	Exogens, with their seeds in an ovary,	I. *Exogeneæ*.
		Exogens, with naked seeds	II. *Gymnospermæ*.
		Endogens	III. *Endogeneæ*.
	without spiral vessels, or with scarcely any		IV. *Rhizantheæ*.

As I proceed in the ascending order, I ought to commence with—

CLASS I.—RHIZANTHS,

which has received its name (*Rhizantheæ*,) from ῥιζα, *a root*, and ανθος, *a flower*, because they are parasitical plants, growing on the roots of others. Although they yield us no pharmacological agent, I cannot forbear noticing one of the wonders of the vegetable world contained in this family, namely, the stupendous *Rafflesia Arnoldi*, whose flower is of an enormous

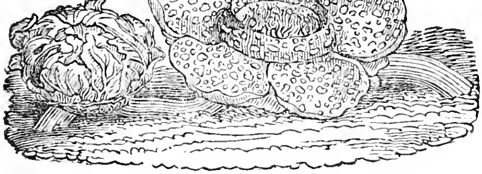

Fig. 104.—*Rafflesia Arnoldi.*

* Thinking it would be useful to students, I have adopted the nomenclature and arrangement of Mr. Lindley, in the second edition of his "*Natural System*," just published.

size and weight: its diameter being 3½ feet, its weight 15 lbs., and the hollow in its centre capable of holding 12 pints, English measure! It grows on the woody stems and roots of a trailing plant—the *Cissus augustifolia.* I understand that in Java this plant is used in the form of decoction, as an astringent application in relaxed conditions of the vagina.

CLASS II.—ENDOGENS, OR MONOCOTYLEDONS.

The plants of this class are sexual and vascular; their stem is composed of cellular tissue, irregular, intermixed with bundles of vessels, but having no distinction of bark, wood, and pith; destitute of medullary rays; and increasing in diameter by the addition of new matter in the centre: hence the term *endogeneæ*, from ενδον, *within*, and γενναω, *to produce*. The leaves are mostly sheathing at the base, alternate, with parallel simple veins connected by fine transverse ones. The number of the floral parts is commonly three or six: thus you will find that a large number of the officinal monocotyledons have three or six stamina, and hence, in the Linnæan arrangement, belong to the classes Triandria or Hexandria. For example, the genera Avena, Hordeum, Saccharum, Triticum, Iris, and Crocus, belong to *Triandria;* while Acorus, Scilla, Allium, Aloes, Colchicum, Veratrum, Smilax, and Elais, are placed in *Hexandria.*

The principal character of Endogens, however, is to be found in the peculiar formation of the embryo, which has usually one cotyledon only (hence the term *monocotyledones*), though sometimes there is a second small one. In germination the plumula ruptures the sheath (*coleoptila*) which surrounds it, while the radicle does the same with its sheath (the *coleorhiza*): hence Richard terms endogenous plants *endorhizæ* (from ενδον, *within*, and ῥιζα, *a root.*)

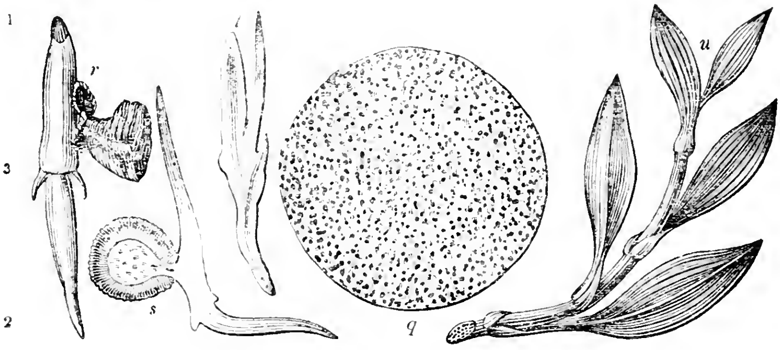

FIG. 105.—*Endogens, or Monocotyledons.*

q, Transverse section of a monocotyledonous stem, shewing the absence of medullary rays and of annual layers.
u, Stem and leaves of a monocotyledon, shewing the alternated sheathing leaves, with parallel veins.
r, Germinating seed of Tradescentia cristata (a monocotyledon), showing the plumule rupturing the coleptilæ, with the radicle (2), and radicellæ.
s, Section of a germinating seed, showing the cotyledon remaining in the testa.
t, Germinating embryo of a grass, to show the two alternate cotyledons of unequal size, with the intermediate plumule.

Division.—Of the thirty-nine orders or families admitted by Mr. Lindley, in the second edition of his "*Natural System,*" a few only require to be noticed in these lectures, and I therefore do not think it necessary to speak of them in any regular order. I shall begin with the *Spadiceous Endogens,*—the *Spadicosæ* of Mr. Lindley. Of these I shall notice two families or orders—*Araceæ*, and *Acoraceæ*.

ARACEÆ, OR AROIDEÆ.

These are spadiceous endogens, having no perianth, with unisexual flowers, generally contained within a spatha, with leaves in the bud, convolute, and berried fruit. As no officinal plants are contained in this family, I shall be very brief with it. Its prevailing property is acridity; and hence some energetic poisons belong to it. One of the most remarkable of these is the Caladium sequinum, or Dumb cane; two drachms of the juice of which have proved fatal in a few hours. The only indigenous one to notice is Arum maculatum: known also by the names, Wake Robin, Cuckow-pint, Jack in a box, Jack in the pulpit, Cows and Calves, Lords and Ladies, &c. The whole plant is exceedingly acrid, and is even capable of exciting,

but, curiously enough, drying, and heat (as boiling or baking) deprive it of its acridity, and it then becomes not only harmless but even nutritious, and from the underground stems (or cormi) is manufactured the substance, called Portland sago.

FIG. 106.—*Arum Maculatum.*

a, The spatha. *b*, The spadix.

The Egyptian Arum, or Arum colocasia, is cultivated in Egypt, for the nutritious matter got from the cormi.

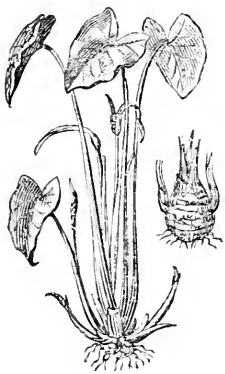

FIG. 107.—*Arum Colocasia, or Egyptian Arum.*

ACORACEÆ, OR ACOROIDEÆ.

This is another monocotyledonous spadiceous family, differing from the one just mentioned in having the leaves in the bud equitant, the flowers hermaphrodite, and the fruit dry. It contains one officinal plant, namely,

Acorus Calamus, or *Common Sweet Flag.*

History.—This plant is probably the Ακορον of Dioscorides. It certainly is not the Καλαμος αρωματικος of the same writer. My friend, Mr. Royle, Professor of Materia Medica at King's College, thinks the latter is the *Andropogon Iwarancusa*, or some allied species.

Characters.—It is an indigenous perennial, flowering in June. The root consists of numerous fibres, which arise from a ringed or jointed aromatic rhizome, placed horizontally in the earth; the rings or joints being, in fact, the cicatrices of decayed leaves. The leaves are long, ensiform, and sheathing at their base. The scape is simple, and rises high above the top of the spadix, becoming leafy. The perianth is of six pieces or scales, inferior; stamens six; pistillum of three concrete carpella; stigma sessile; fruit capsular, indehiscent. It belongs to *Hexandria, Monogynia*, of Linnæus.

Description of the dried rhizome.—The Radix Calami of the shops is the dried rhizome, or underground stem. The market is principally supplied with it from Norfolk, in which county this plant is abundant. It occurs in pieces four or five inches long, and about as broad as the thumb; jointed, crooked, somewhat flattened at the sides, spongy; of a yellowish-brown or fawn colour externally, and buffy, with a slightly roseate hue internally. The upper surface is marked transversely with the vestiges of the leaves which were attached to it; the lower surface has numerous black points, surrounded by small white elevated circles, from which the root-fibres arise. The taste is warm and bitter, the odour aromatic.

Chemical properties.—The following are the constituents of the rhizome, according to Trommsdorf:—

Volatile oil	0·1
Resin	2·3
Extractive (with a little chloride of potassium)	3·3
Gum (with some phosphate of potash)	5·5
Inuline	1·6
Woody fibre	21·5
Water	65·7
	100·0

The quantity of *oleum calami* got from the fresh root by distillation with water is various: perhaps we shall not be far from the truth if we assume it to be about 4 oz. from 25 lbs. The oil is yellowish, with the flavour of the flag-root.

Physiological effects.—Aromatic and tonic. Its active ingredients are the oil, resin, and extractive.

Uses.—It is rarely employed by medical practitioners; but it might frequently be substituted for other more costly aromatics. It is adapted to cases of dyspepsia, or as an adjunct to tonics, or to purgatives,

Its dose is from a scruple to a drachm. There are various economical uses of it, which I am obliged, for want of time, to pass over.

I now proceed to notice *Glumaceous Monocotyledons* (the *Glumosæ* of Mr. Lindley): the only family or order of which, requisite for me to notice, is

GRAMINEÆ, OR GRAMINACEÆ.

Characters.—The grasses form one of the most important families of the vegetable world. Their root is fibrous or bulbous: their stem (called a culm) is hollow, jointed or knotted, with transverse partitions at the joints, usually rounded, and externally siliceous. The latter circumstance is well illustrated when a hay stack has been burned; masses of fused silicic acid are obtained. The leaves arise from the joints of the culm, are alternate, with parallel veins, sheathing, the sheath or vagina being split, and having at its top a membranous process, called a ligula. The inflorescence is a spike, raceme, or panicle, the parts of the inflorescence being called spikelets (spiculæ or locustæ). The flowers are usually hermaphrodite, sometimes unisexual, destitute of perianth, (that is, calyx or corolla) but having in the place of it imbricated bracteæ, the most exterior of which are called glumes, the most interior scales, and the intermediate ones, paleæ. The scales may be considered as representing the corolla, the paleæ the calyx, and the glumes the bracteæ. The stamina are hypogynous, and vary in number from 1 to 6, or even more, but usually being 3. Hence the majority of the grasses belong to the class Triandria of Linnæus. The ovary is simple; the styles generally two; the stigmas feathery or hairy. The fruit is, for the most part, a caryopsis,

FIG 168.—*Flowers of Grasses.*

a, The ovarium (with the two scales at the base), surmounted by two feathery stigmata.
b, Two glumes (the outermost furnished with an arm,—the innermost has a notch at the top, indicating it is formed of two glumes), and three stamina.
c, Spikelet, or locusta.

(that is, an indehiscent one-seeded pericarp, which adheres firmly to the seed): in some few cases it is an achenium (distinguished from the caryopsis in being bony, and not contracting any adhesion to the seed). The seed is albuminous; the embryo lies on one side of the farinaceous albumen, having usually one, but in some cases, two cotyledons (see fig. 165), the second one being small and alternate with the first.

Chemical properties.—The analogy which exists between the different species of grasses is not confined to exterior resemblance, but extends to chemical composition and physiological effects. I have already* noticed the principal instances in which poisonous principles are presumed to exist, and which, compared with the vast extent of the family, are very few, almost every plant being salubrious and nutritive in all its parts. The only indigenous exception is Lolium temulentum, or Darnel grass, the poisonous operation of which has been known from the most ancient times. Bizio says it contains two peculiar narcotic principles, which he terms *Glajololica* and *Lolino.* This grass usually operates as a narcotico acrid poison. In the seeds of grasses the nutritive property is particularly remarkable; their principal constituents being starch, gluten, gum, sugar, and vegetable albumen. The stems and leaves also contain nutritive matter; namely, sugar (particularly in the sugar-cane), mucilage, and fecula, and they are in consequence employed as food for cattle. Even the subterraneous stems and roots contain these principles, as in the case of Triticum repens and Panicum dactylon.

I must not omit noticing other principles contained in grasses. Thus silicic acid (as already noticed) is met with in their stem. In Bambusa arundinacea lumps of it are found in the cavities of the joints, and in this state it is called *tabasheer*, and was at one time highly prized: the Hindoos consider it a powerful tonic; the Persians regard it as cardiac and strengthening! Odorous matter is found in several grasses. Thus the long fibrous roots of Andropogon muricatus, also called Vetiveria odoratissima, are used by our perfumers under the name of *vetiver*, (a term derived from the Tamool word *woetiwear*, or *vittie vary*). Its odour depends on an aromatic volatile oil. The "Grass oil of Nemaur" is obtained from the Andropogon Iwarancusa: it is very fragrant, and has been employed in rheumatism. Our own Anthoxanthum odoratum, which is without scent while growing, developes a most fragrant odour,—the

* MEDICAL GAZETTE, vol. xvii. p. 4.

well known smell of new-mown hay,—when rubbed or cut, depending, it is said, in part, on benzoic acid.

Medicinal properties. — These will be readily understood from the remarks already made.

Secale cornutum, or Ergot of Rye.

History.—That condition of corn, usually denominated the *spur* or *ergot*, is supposed to be alluded to by Pliny in the 18th book of his *Natural History.* Sigebertus Gemblacensis remarked, that in 1096, A.D., many persons were struck with a peculiar disease. "The black and completely carbonized limbs separated from the body, and the sufferers either perished miserably, or dragged on an unhappy existence deprived of hands and feet. The bread at this period was remarkable for its deep violet colour." Such is the first notice of the disease produced by ergot of rye, and which I have quoted from Bayle's "*Travaux Thérapeutiques*," who cites the "*Abrégé chronologique de l'Histoire de France*" of De Mézeray, an author of the 17th century*. In the "*Botanicum Herbarium*" of Lonicerus, in 1540, the ergot is recommended in hysteria. In 1688, Camerarius stated, that the women in certain parts of Germany used it to accelerate parturition. This is, I believe, the first notice of it as a uterine remedy, though from the name *mutterkorn* (literally signifying *mother corn*, or *uterine grain*), which had been applied to it in the provinces, it would appear to have been long in popular use. The first male accoucheur recorded to have used it is Desgranges, in 1777, who tells us, that the midwives of Lyons had been accustomed to employ it from time immemorial. However, we are principally indebted to Dr. Stearns, and other American practitioners, for its regular introduction into practice.

Natural history.—Several of the grasses (about thirty have been enumerated) occasionally undergo a remarkable alteration, and which has been denominated the *spur*. Rye (the *Secale cereale* of botanists) much more commonly undergoes this change than other plants. It consists in a deviation in the size, form, and colour of the seeds. The number of seeds in a single spike which become affected, vary from three to ten, or even more than this; and it has been remarked, that the greater the number, the smaller is the size of the altered grain, and *vice versa.*

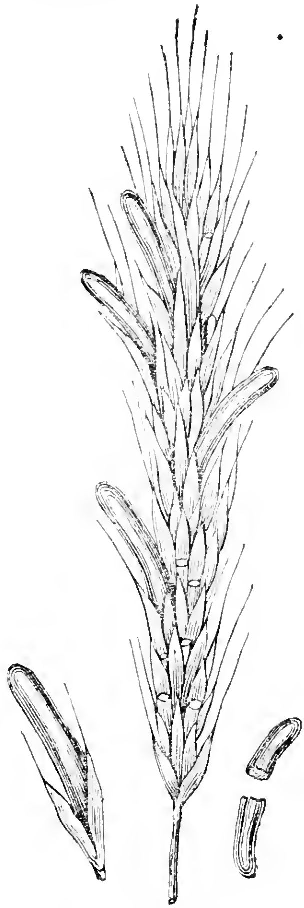

FIG. 109.—*Secale Cereale.*

It usually occurs in poor, low, wet soils; and more frequently in rainy than dry seasons. Various opinions have been entertained respecting its nature. Some think it is a kind of gall produced on the rye by the puncture of an insect; others regard it as a fungus developed within the husk; and, lastly, some consider it to be a diseased condition of the ovarium.

Decandolle is the principal supporter of the opinion that the ergot is a fungus, and the arguments which he uses are threefold: the physical properties of the ergot are similar to those of the genus Sclero-

* I have been unable to find the above passage in Mezcray's "*Abrégé chronologique*," or in his "*Histoire de France*, or in his "*Mémoires Hist. et Critiq.*" However, in the "*Recueil des Historiens des Gaules et de la France*," tom. xiii. p. 258, I find the following extract from the works of Sigebert:—"1089. Annus pestilens maxime in occidentali parte Lotharingiæ, ubi multi sacro igne interiora consumente computrescentes, exesis membris instar carbonum nigrescentibus, aut miserabiliter, moriuntur, aut manibus, ac pedibus putrefactis truncati, miserabiliori vitæ reservantur, multi verò nervorum contractio distorti tormentantur."

tium; the mode of development is that of a fungus; lastly, the poisonous effects are similar. Moreover, Wiggers asserts that the basis of the structure of the spur is analogous in its chemical properties to Fungin, and that the white dust (sporules?) sometimes observed on the surface of the ergot, is capable of communicating the disease to another plant. Besides the writer just mentioned, I may name Fries, Nees von Esenbeck, and Leveillé, who have adopted Decandolle's notion. The latter calls this supposed Fungus *Sclerotium clavus*, but Fries terms it *Spermadia clavus*, while Leveillé names it *Sphacelia segetum*.

But the majority of botanists have not admitted this opinion, to which indeed several objections exist. In the first place Tessier and Beauvois say they have seen grains of rye, one half of which was sound, the other half ergot or spur. But as grains of corn are occasionally met with, one half of which only is affected with smut, this can hardly be considered a valid argument. Secondly, the ergot differs from sclerotium in three characters: the subfarinaceous quality of the external coat (a distinction pointed out by the Rev. Mr. Berkeley),—the friability of the substance of the spur,—and the facility with which the ergot separates from the plant. Moreover, Vauquelin, having made some comparative experiments both on the ergot and some species of sclerotium, has concluded there is a material chemical difference between them. On these, as well, perhaps, as other grounds, botanists have been for the most part disposed to consider the ergot as a diseased condition of the grain. But it must be admitted that the whole subject requires further examination.

Physical properties of the ergot.—Externally the ergot has a violet, but internally a dirty white colour. It has a cylindrical form, somewhat tapering at the extremities, slightly curved, with a longitudinal streak on the convex, as well as on the concave side. Its supposed resemblance in form to the spur of a cock has led to the name "spurred rye." Its length is from a few lines to an inch and a half; its breadth from two to three lines. Its odour is peculiar; its taste, at first imperceptible, is afterwards acrid and disagreeable. The external coloured pellicle, seen through a microscope, appears as a mass, strewed with small whitish spots: viewed internally by a microscope, we observe small and brilliant grains like starch. It is lighter than sound rye.

Chemical composition. — Notwithstanding the labours of Vauquelin, Pettenkofer, Winkler, Wiggers, and others, chemistry has hitherto thrown little light on the active principle of ergot of rye; indeed, the results obtained are of such a contradictory nature, that I conceive we can only account for them by presuming a variation in the properties of the ergot. Thus Vauquelin and Wiggers deny the presence of starch; whereas both Winkler and Combes assert that it is present, though the former qualifies the assertion by calling it modified fecula. Wiggers states that the active principle (which may be called *ergotin*) had a strong peculiar taste and smell; whereas Dr. Christison, following Wiggers' process, found that what ought to have been ergotin was destitute of marked taste or smell. Robert asserted the presence of hydrocyanic acid, and Pettenkofer thought that phosphate of morphia was one of the constituents; but these statements have been denied by others. All agree in the existence of oil, and that the constituents of ergot are more of an animal nature than those of healthy rye. Here are Vauquelin and Wiggers' analyses of ergot:—

Vauquelin's Analysis.

Pale yellow colouring matter, soluble in alcohol, and tasting like fish oil.
White bland oil, very abundant.
Violet colouring matter, insoluble in alcohol, soluble in water.
A fixed acid, probably phosphoric.
Vegeto-animal or nitrogenous matter, prone to putrefaction, and yielding ammonia and oil by distillation.
Free ammonia disengaged from ergot at 212° F.

Wiggers' Analysis.

Ergotin, soluble in alcohol, insoluble in water and æther	1·24
Peculiar fixed oil	35·00
White crystallizable fat	1·04
Cerin	0·75
Fungin	46·18
Osmazome	7·76
Peculiar saccharine matter	1·55
Gummy extractive	2·32
Albumen	1·46
Saline and earthy matters	traces.
	97·30

Physiological effects. (*a.*) *On animals generally.* — Animals usually refuse to take spurred rye as food; but when they are made to swallow it, it produces local irritation (marked by vomiting, purging, and the usual post-mortem appearances of inflammation), and by continued use brings on an affection of the nervous system (indicated in the higher classes by trembling, giddiness, dilated pupil, and palsy), and abscess and gangrene of various parts of the body,—sometimes with dropping off of the toes. These effects have been ob-

served on dogs, cats, pigs, moles, birds of various species, leeches, flies, &c. A strong decoction injected into the vein of a dog caused general feebleness, paralysis of the posterior extremities, vomiting, and death.

Some doubt still exists whether ergot has the power of producing parturition in animals in a state of gestation. Chapman says "it never fails, in a short time, to occasion abortion;" but this is obviously an error, for it frequently does fail; and the question really is, whether it ever has this effect. Analogy is strongly in favour of the supposition that it has; and we have the testimony of Percy and Laurent, that a decoction injected into the veins of a cow caused the animal to calve speedily; and in one out of three experiments, Mr. Combes has stated, the ergot caused the abortion of a bitch. However, in opposition to these statements, we have the evidence of Chatard, Warner, Villeneuve, and others, who failed in producing abortion with it.

(*b.*) *On the human subject.*—The effects of *single doses* of the ergot do not appear to be uniform: some have taken it in large quantities without any obvious effects, while in others it has excited gastro-intestinal irritation (marked by thirst, dryness of the throat, nausea, vomiting, colic, and purging), with flushed countenance, headache, giddiness, febrile disorder, inactivity, slight delirium, cramps, &c. From these effects on the nervous system, it is placed by Richter, Sundelin, and others, among the Narcotica. One of its most remarkable effects is promoting or producing contractions of the gravid uterus; and on this account I have ventured to term it a *parturient*, or more properly a *parturifacient*. Others have termed it *partus accelerator*, or *uteri contractor*. That it promotes the contractions of the uterus when labour has actually commenced, I presume no one who has seen it extensively employed will attempt to deny. Some doubt, however, seems to exist as to its power of originating the parturient process: but the facts appear to be these,—in several cases it has failed to produce abortion, but has succeeded in others. Girardin says, in the colonies, the ergot was regarded as an abortive; and Oslere, Thomson, Duchateau, and others who might be quoted, view it in the same light. On the whole, the balance of evidence appears to me strongly in favour of its power to bring on the parturient process; and I could quote several cases in which abortion followed (and, as I believe, was the consequence of) the use of ergot. Some have asserted the ergot to be emmenagogue, but others have denied it.

The *continued use* of ergot as an article of food brings on a peculiar disease, termed *Ergotism*. In different parts of the Continent, namely, in France, (particularly in the district of Sologne) in Silesia, Prussia, Bohemia, Saxony, Denmark, Switzerland, and Sweden, there are numerous instances of the existence of a dangerous disease, which affects at the same time whole districts of country, and attacking persons of both sexes, and of all ages. On all these occasions it has been observed that the affected persons had used bread made in part of spurred rye. This disease assumes two types, the one of which has been denominated the *convulsive*, the other the *gangrenous ergotism*. Whether these arise from different conditions of the ergot, or from peculiarities on the part of the patients, or from the different quantity of the ergot taken, we are hardly prepared now to say. In *convulsive ergotism* the symptoms are weariness, giddiness, contraction of the muscles of the extremities, formication, dimness of sight, loss of sensibility, voracious appetite, yellow countenance, and convulsions, followed by death. In the *gangrenous ergotism* there is also experienced formication, that is, a feeling as if insects were creeping over the skin, voracious appetite, coldness and insensibility of the extremities, followed by gangrene.

I may here remark that in the Philosophical Transactions for 1762, a similar form of disease is recorded to have occurred in Suffolk, in consequence of the use of damaged wheat. Spurred maize, however, though poisonous, seems to act in a different manner.

Modus operandi.—Our knowledge of the operation of ergot of rye is at present very imperfect; and in the absence of further accurate information it is impossible, I think, to decide whether it acts by absorption or by sympathy.

Uses.—Before proceeding to notice the different uses made of the ergot of rye, I think it right to state that I am indebted to the "*Travaux Thérapeutiques*" of Bayle for the numerical, as well as some other details connected with this part of our subject.

1. *Ergot of rye is principally employed to promote uterine pains during the process of parturition.* Its effects are usually observed in from ten to twenty minutes after its exhibition; and are manifested by an increase (both in violence and frequency) of labour-pains, and in some cases by an excitement both of the nervous and vascular systems. Frequently the pains never cease until the child is born, nay, they frequently continue for some minutes after, and promote the separation of the placenta. Judging from the numerical details of cases hitherto published, it rarely fails in producing its uterine effect. Bayle states, that of 1176 recorded cases in which it has been used—

It proved successful in	1051
It was moderately successful in	14
And failed in	111
Making a total of	1176

I need hardly remind you that previous to its exhibition you ought to be fully satisfied that the mechanical requisites to delivery exist, such as a proper conformation of the osseous and soft parts, and that the fœtus be so presenting that no manual interference be required. Without these conditions, the consequences of exhibiting the ergot may be in the highest degree dangerous or fatal. In addition to these I ought probably to add, a dilated, soft, and yielding condition of the os uteri; but this is not considered by some accoucheurs to be requisite, and several cases are mentioned in which the ergot seemed to soften and dilate the os uteri,—indeed this has been said to be one of its valuable effects; and Chevreuil has reported 16 cases in which the ergot dilated the mouth of the womb. One ill effect ascribed to its use is, that it often proves fatal to the child; and it has been asserted, that in America, where the ergot is extensively used, the proportion of stillborn children is much greater than in this country. Indeed the late Dr. Hosack, an American writer, calls the ergot the "*pulvis ad mortem*, for I believe (says he) its operation, when sufficient to expel the child, in cases where nature is alone unequal to the task, is to produce so violent a contraction of the womb, and consequent convolution and compression of the uterine vessels, as very much to impede, if not totally to interrupt, the circulation between the mother and child." However, Dr. Chapman, another American authority, strongly denies this charge, and tells us that in 200 cases which occurred in the practice of himself and Drs. Dewees and James, the ergot was used without doing harm in any respect; and he adds, "no one here believes in the alleged deleterious influence of the article on the fœtus." Notwithstanding these contra assertions, I am very much inclined to believe, partly from my own experience, that the ergot is injurious (though not always fatal) to the child. I ought to remark, that in very plethoric subjects, with flushed face, the ergot is objectionable, or at least ought to be preceded by blood-letting.

2. *To produce the expulsion of the placenta*, the ergot has sometimes been employed after the birth of the child, and with advantage. Bayle refers to nine published successful cases.

3. *To produce contraction of the uterus, and stop uterine hæmorrhage*, it has also been employed with success. Here is a tabular view of the comparative success obtained in recorded cases:—

In 24 cases of puerperal menorrhagia, it was successful in all.

In 46 cases of non-puerperal menorrhagia, in 44 the discharge ceased, in 2 it was not affected.

It, however, has not been confined to uterine hæmorrhages, for Spajrani, Pignacca, and Cabini, have used it, and they say with benefit, in epistaxis, hæmoptysis, hæmaturia, and hæmatemesis.

4. The ergot has also been used to expel clots from the uterus, as well also as polypi.

5. In leucorrhœa it has been used by Bazzoni; and he says that in seven out of eight cases with advantage.

6. In five cases of puerperal convulsions, the ergot has been successfully employed to hasten delivery.

7. In amenorrhœa it is said to have been employed with success.

8. If it have, as I believe it has, a power of producing abortion, this may sometimes be taken advantage of in deformed pelves, &c.

Administration. — Ergot of rye may be given in powder, infusion, decoction, or tincture. In powder, it is given in doses of a scruple or half a drachm. The infusion, or decoction, may be made of a drachm of the ergot to four ounces of water: half to be taken as a dose, and repeated in an hour if no evident effect be produced.

The *Tincture of Ergot of Rye* is made by digesting two ounces of the ergot in a pint of proof spirit; so that a fluid ounce contains half a drachm of ergot. Some practitioners prepare it with twice this quantity of ergot. Others make a watery infusion, or decoction, and then add rectified spirit to it.

IRIDEÆ, OR IRIDACEÆ.

Characters.—The plants of this family are herbaceous, with fibrous or tuberous roots, leaves with parallel veins, hexapetaloid flowers, three stamina, the anthers of which are turned outwards; inferior ovarium; generally petaloid stigmata; fruit a three-celled capsule; embryo of the seed inclosed within albumen.

Chemical properties.—The rhizomes are generally feculent and amylaceous, frequently containing odorous and bitter matters (as in Iris Florentina, commonly termed orris root), and sometimes an acrid substance, as in the fresh rhizome of Iris pseudo-acorus. Colouring matter is obtained from the petaloid stigmata of Crocus sativus.

The only officinal species is

Crocus sativus.

History.—Saffron, the product of this plant, appears to have been known to the ancients.

Characters.—The stem is of the kind called a cormus; the leaves are linear and nerveless, the flowers of a light violet-blue colour, the style divided into three long stigmata, of a fine deep yellow colour. The plant belongs to *Triandria, Monogynia*, of Linnæus.

Properties of saffron.—Two kinds of saffron are known in the shops; the best or true saffron, commonly termed *hay saffron*, or Crocus in fœno, and the *cake saffron*, or Crocus in placenta.

The *hay saffron* consists of the stigmata and upper part of the styles, which have been very carefully dried. It is said that 20,000 flowers are required to yield a pound of saffron.

The *cake saffron* was formerly merely the hay saffron pressed into the form of a cake. It is usually now made of genuine saffron, mixed with marigolds, or safflower.

Chemical composition.—The composition is said to be

Odorous volatile oil	7·5
Wax	0·5
Polychroite	65·0
Gum	6·5
Albumen	0·5
Water	10·0
Vegetable fibre	10·0
	100·0

Polychroite has received its name from its taking different shades of colour by the action of acids and alkalies. It is frequently quoted as an example of extractive.

Physiological effects.—In moderate doses it stimulates the stomach, and in large quantities excites the vascular system. Moreover. it seems to have a specific influence over the cerebro-spinal system, as it affects, it is said, the mental faculties, and which Decandolle regards as similar to the effects produced by the petals of certain odorous flowers.

Uses.—In modern practice it is little used, except as a colouring ingredient, and on the continent it is employed as an agreeable stimulant in many culinary preparations and liqueurs. In a medicinal point of view, it is frequently used to assist the eruption of exanthematous diseases; on the same principle, I suppose, that bird-fanciers give it to birds in the moult. It has been used as a carminative, antispasmodic, and emmenagogue. It is given in doses of from ten to thirty grains.

CONTRIBUTIONS TO THE DIAGNOSIS OF THORACIC DISEASE.

NO. V.

By Charles Cowan, M.D. E. & P. &c. Bath.

Inspiration.—Importance of Pulmonary Elasticity as a cause of Puerile Respiration, and other Variations in the Inspiratory Murmur.—Influence of Pressure upon the inspired Air.—Effects of Pulmonary Dryness and Moisture upon the respiratory Sounds.

The act of inspiration results from the entrance of the air into the vacuum produced in the interior of the chest, in consequence of muscular contraction expanding and enlarging the cavity. The phenomenon, however, cannot be regarded as a simple illustration of the ordinary effects of atmospheric pressure, but as involving an obstacle to its completion, in addition to what results from a want of proportion between the size of the cavity to be filled, and the communicating orifice.

It will easily be perceived, that the condition we allude to is the *elasticity* of the lung, which, whatever may be its amount, proportionately opposes the entrance of air into the thorax, and necessitates, on the part of the muscles, a power not only sufficient to overcome atmospheric resistance, but also the elasticity of the pulmonary organs themselves. No one who has not seen and felt it can appreciate the real extent to which the lungs are invested with elasticity, or fully estimate the effect this property produces upon the respiratory function. The most powerful blowing with the mouth will only very partially inflate the recent lungs of a sheep, which closely approach those of man in their general volume; and the attempt to expand even a single lobe, is opposed by very considerable resistance.

When the inflating power is withdrawn, the air is expelled with great force and rapidity, the organ suddenly and strongly collapsing upon itself. If the lung is distended with water, by means of a tube attached to the trachea, the greater part of the fluid is imme-

diately discharged when the compressing column is removed. The elasticity is, however, rapidly impaired by a repetition of the experiment, as is also the case after forcible injection of air, the cells being permanently distended, as we find them in certain examples of emphysæma, and the change of volume after each inflation becoming gradually less and less. The effect produced upon the expiratory function by this condition of the lung, we have considered in a previous communication (MED. GAZ. May 28, 1836), and our object at the present moment is simply to suggest a few reflections upon pulmonary elasticity, as a cause of the numerous varieties in the strength and character of the inspiratory murmur.

It is well known that the intensity of this sound varies in different individuals, in infancy, adult and old age, and at very short intervals the same chest under a variety of circumstances: though modified by voluntary respiratory efforts, and in some degree affected by the increased or diminished thickness of the thoracic walls, yet all observers admit, that there are certain modifications which volition is incapable of producing, and which cannot be referred to any appreciable physical condition whatever.

The normal respiratory murmur is considered by all observers to depend on the friction of the inspired air, on the expanding vesicles under extreme bronchial ramifications; and the gradual diminution the sound experiences during the progress of emphysæma, is very rationally attributed to the corresponding changes taking place in the vesicular structure of the lung. We find, indeed, that whatever increases the friction between the lung and the air, adds intensity to the respiratory murmur, and it will be readily admitted, that this effect might depend either upon the extent and rapidity of the thoracic movements, or upon modifications of the lung itself, which is unquestionably liable to variations in its elasticity or contractility, and therefore necessarily presents a greater obstacle at one time than at another to the entrance of the air into the chest.

The same principles of reasoning have not, however, been applied when endeavouring to account for the differences observed in individuals where no morbid influence can be suspected; and in the instance of puerile respiration, a variety of hypotheses have been advanced, all founded upon some supposed increased activity of function,—peculiarity of innervation, constitutional irritability, &c.—attempts at explanation which we are satisfied no one has found satisfactory, and which literally convey no definite idea to the mind.

It may, we think, with safety be adopted as a principle, that physical effects must have an immediate physical origin; and though, in organised beings, this is ultimately to be referred to some inexplicable vital influence, our efforts must be directed to discover the tangible modification produced, and not rest satisfied with an assumption of a mere possibility, which even, if true, establishes a coincidence, rather than provides an explanation.

If the natural respiratory murmur depends on the physical condition we have described, all possible modifications of the sound must be referable to some analogous causes, and if none such can be discovered, we may feel satisfied that our failure is to be attributed to the imperfection of our knowledge, rather than to a false method of investigation.

We are, indeed, nearer truth when we clearly recognise the limits of our information, than when we satisfy our mental cravings by a mock image of science, which assumes a fictitious existence under the garb of high sounding but really unmeaning words.

Acting upon these principles we would suggest, that the different intensities in the respiratory murmur, independently of those arising from voluntary efforts and modifications in the thickness of the thoracic walls, are to be immediately ascribed to variations in the elasticity or contractility of the lung; properties, which we have already remarked, determine the resistance, and consequently the friction experienced by the inspired air. The pulmonary elasticity, in all probability, varies at different periods of life, and, like that of our tissues in general, is undergoing perpetual alternations in common with the healthy or diseased condition of the frame, while the muscular contractility, from its immediate dependance upon the nervous system, is evidently exposed to rapid and fre-

quently recurring changes. These two considerations alone, while they, to a certain extent, account for the numerous variations of which the inspiratory murmur is susceptible, contribute also to their explanation, in a manner which, if not wholly unobjectionable, is at least intelligible, and consonant with what we know of the causes of the respiration in general.

We have distinct recollection of a case where puerile respiration was universal and very distinct whenever a sense of dyspnœa was present, while the respiratory murmur was natural at other moments, and could not be excited to puerility by any voluntary efforts of the patient. There are certain examples of asthma characterised by this peculiarity in the inspiration, and where no physical cause of the phenomenon can be detected, and when it is equally beyond the power of volition to control. Laennec remarks that a small number of individuals retain the infantile respiration during the whole of their lives, and that this occurs generally in men and women of nervous temperament. Such persons, he observes, are peculiarly susceptible to all impressions, very liable to cold and shortness of breath upon the slightest exertion; in short they possess a very irritable or very elastic condition of the lungs, which are kept in a state of high organic contractility, and are probably only just capable of supplying the necessary wants of the economy. This last consideration we shall again refer to. Local inflammation is also a well known cause of puerile respiration over the healthy portions of the chest, and certainly, in many instances, cannot be attributed to increased movement of the parietes; indeed, this last supposition is neutralised by the fact that the same individual in a state of health is incapable of reproducing the sound by voluntary efforts. The respiratory murmur is also increased after meals, after temporary suspension by reading, or continued utterance, after moderate exercise; while on the other hand it is weakened by diseases accompanied with symptoms of prostration, by violent and exhausting exertion during the period of convalescence, &c.; all which modifications are easily explicable by supposing some increase or decrease of the elasticity and contractility of the lung, which, under the circumstances we are enumerating, may be regarded as certain to have occurred, or at least as highly probable. We are not forgetting the accompanying condition of the respiratory muscles, and their effect in enlarging more or less rapidly the thoracic cavity; but we feel satisfied that after every allowance has been made for these modifying causes, there will still remain acoustic changes to be accounted for, which can only be explained by ascribing them to some alterations in the state of the pulmonary organs themselves.

Increased contractility of the lung may, however, produce effects very different from those we are supposing, and impede, instead of assist, the respiratory function. Violent and unusual exertion produces spasmodic action of the air tubes, (perhaps the vesicles); and in hooping-cough, certain cases of bronchitis, suffocating catarrh, and asthma, similar effects are reasonably inferred. The entrance of the air is then either momentarily interrupted, or becomes very irregular and partial; the thorax is imperfectly expanded, and the respiratory murmur either quite inaudible, or reduced to extreme feebleness—a fact by no means irreconcileable with the remarks we have made on contractility, as one of the causes of increased intensity in the inspiratory sound.

M. Cruveilhier (Anat. descrip. t. ii. p. 633) explains puerile respiration by supposing the air under these circumstances to enter an additional number of vesicles, a certain portion of which, he thinks, are always placed in reserve for extraordinary occasions. The fact, however, of peurile respiration being normal in the child; of its frequently recurring in the adult when no increase of the respiratory movements can be detected, but where frequently, from the presence of local disease, they are even less extensive than natural; and lastly, the increased loudness of the respiratory murmur, which may be voluntarily induced by rapid, but very limited movements of the thorax and diaphragm, all tend to lessen the value of this certainly very ingenious hypothesis. Laennec (t. i. p. 52, 3d edit.) simply infers that it depends on the greater respiratory wants of the system, and seems to associate it with greater freedom in the movements of the thorax, stating his belief, that it is not dependent on any modification of the pulmonary

structure itself, because the sound is capable of being accidentally excited by various morbid conditions. This conclusion is, however, at variance with the previously stated fact, that puerile respiration cannot be induced by voluntary efforts. Dr. Williams (p. 29, 3d edit.) attributes the diminution of the respiratory murmur in the adult to the greater comparative development of the lungs at that age, compared with the activity of the function, and supposes that the loudness of the sound in infancy is connected with the pliability of the lung, allowing easy and complete distension, while its feebleness in the adult is depending on the opposite condition, viz. pulmonary rigidity. Dr W. is, however, evidently dissatisfied with his own explanation, and fails in his usual perspicuity of expression. Dr. Forbes (Cyc. Pract. Med., vol. i. p. 227) offers no explanation of the phenomena, and M. Raciborski, in his Manual of Auscultation, adopts the ideas of M. Cruveilhier. M. Magendie (Lancet, March 7, 1835, p. 796,) attributes the variations in the intensity of the vesicular murmur at different periods of life to the gradual rarefaction of the lung, and the diminished force and rapidity of the respiratory movements. "However, we must confess," he says, "that independently of the differences of age, there are certain individual dispositions which give a variety to the respiratory sound, even in subjects enjoying perfect health, and apparently placed in the same physiological conditions."

The preceding references will prove that the real source of puerile respiration is still undecided, while reflection almost forces the conclusion, that it must be associated with a class of causes similar to those which produce the ordinary respiratory murmur. This, by almost universal consent, has been ascribed to the friction of the inspired air on the vesicles and ultimate bronchial ramifications; and since the different intensities in the sound cannot all be produced by the force or rapidity of the respiratory movements, or indeed by any appreciable physical condition, some other source of increased friction must necessarily exist; and in the undoubted elasticity and probable contractility of the lung, we believe a satisfactory solution may be found. We say probable contractility, for though the researches of Reisseisen and Varnier, combined with the evidence of comparative anatomy, establish the existence of muscular fibres, yet the extent of their influence in resisting the entrance of the air can be less easily demonstrated than that of the simple elasticity.

The importance of the latter property has more than once been insisted on, and we can easily conceive that whenever it has materially increased or diminished, either from physical or vital causes, corresponding variations in the intensity of the inspiratory murmur would occur without any sensible alteration of the thoracic movements. either as regards their extent or rapidity

How far we are justified in attributing increased intensity of respiration solely to augmented elasticity, or to muscular contractility, is not easy to determine; though, when the changes are rapid, quickly excited, and the constitution eminently nervous, perhaps the latter might be considered the more probable; for we are scarcely justified in supposing that a physical property could be so easily impaired or restored, especially when we find it apparently so little interfered with by death.

The decision of the question is not, however, very important for the object we have more immediately in view, since both causes involve the common effect of increasing the friction between the air and pulmonary parenchyma, and consequently of regulating the strength or feebleness of the respiratory murmur. What we particularly wish to insist upon, is the importance of always taking into account the influence which the physical and vital condition of the lungs exerts upon the nature and intensity of the respiratory sounds; some of which seem incapable of being produced, except by certain modifications in the pulmonary organs themselves. By attending to these circumstances, we have proposed an explanation of puerile respiration different from any other which has yet been advanced, and one certainly more in accordance with what we know of the immediate causes of thoracic sounds in general.

It may be objected to the preceding observations, that since puerile respiration is either supplementary or invariably indicative of increased activity of the function, it is not probable that it should depend upon causes unfavourable to the easy entrance of air into the chest. It should, however, be remembered that

so long as the resistance to pulmonary expansion is not too great for the inspiratory muscles to overcome, or superior to atmospheric pressure, the greater density of the inspired air is directly favourable for accelerating those changes upon the blood for which the organ, if more easily expanded, would be insufficient; while the lung itself, by the different amount of pressure it is capable of exerting upon its gaseous contents, may thus regulate the energy of the respiration according to the wants of the economy. In cases where this pulmonary adaptation is impossible, in consequence of physical or other imperfection, the additional supply of air must be obtained by the efforts of the inspiratory muscles enlarging the cavity of the thorax and augmenting the volume of the inspired air: this resource is, however, both more fatiguing and less effectual than the other, because the pulmonary disability requiring such assistance involves imperfect *expiration*, which we have shown, in our previous paper, is mainly performed by pulmonary elasticity; whereas the opposite condition of the lung not only secures the benefit of a denser atmosphere, but facilitates the expulsion of the vitiated air.

If we suppose that the peculiar action of the atmosphere upon the circulating fluid is effected by a kind of imbibition, the oxygen occupying the place of the gaseous products of the venous blood, it is not improbable that augmented pressure may expedite the process, and at all events includes the advantage of increased quantity.

These considerations will also enable us easily to understand why individuals in whom the respiration is naturally puerile, are very liable to dyspnœa after the slightest exertion, or when labouring under any disease of the respiratory organs; their function being habitually at its maximum of activity, and incapable of any effective supplementary action. Children, probably from the same cause, are easily anhelated by any sustained muscular exertion, the extra-activity of the function, as indicated by puerile respiration, being required for their active nutrition. In cases where the respiratory murmur is naturally feeble, or, in other words, where the capacity of the lung is more liberally apportioned to the volume of the circulation, the function is capable of great increased activity, and of more or less completely supplying the additional demands rendered necessary either by exertion or disease. The greater intensity of the respiratory sound, noticed under the circumstances last referred to, and many others, may, we think, be referred to changes in the resistance of the lung, which, in all probability, is effected through the influence of the nervous system, whose office we may suppose to be to regulate the energy of the function to the ever fluctuating wants of the system generally.

Perhaps some of the inconvenience resulting from change of climate, sudden transitions of temperature, and the greater resistance to both cold and heat, experienced by certain individuals for the first few months of their residence in a country either warmer or colder than the one they have left, may be, in some degree, depending on the lung only gradually requiring the native average of activity. In mountaineers, and animals which frequently change their elevation, the pulmonary organs may be unusually capable of adapting themselves to atmospheric variations; and in certain birds the same effect may be produced, by increased or diminished energy of muscular contraction.

The puerile respiration observed to accompany certain affections of the heart, admits of explanation by similar reasoning; and in those instances of asthma where it forms the most tangible feature of the attack, subsiding with the improvement of the other symptoms, it may be rationally ascribed to a temporary increase of pulmonary resistance, for the purpose of restoring the healthy equilibrium.

In every individual, during the diurnal revolution, there are periods of unequal respiratory activity; and we are inclined to suppose that the requisite energy of the function is in part secured by this nice adjustment of pulmonary resistance. That such a power of adjustment is important, may be rendered probable by recollecting the serious derangement in the respiratory functions which ensues when the peculiar property of the lung we are now investigating is materially impaired. The fact of opium diminishing the respiratory murmur, would easily reconcile itself with the foregoing observations.

Before concluding our remarks upon the possible causes of variations in the

intensity of the inspiratory sounds, we may allude to the different degrees of dryness and moisture of the pulmonary vesicles. Every auscultator must have remarked, at times, a peculiar harshness in the respiration; it is louder, rougher, and seems more superficial than natural, conveying to the ear an impression of deficiency in the lubricating moisture of the vesicles; and every pathologist has observed that the amount of fluid in the lung is very variable after death: there are, indeed, cases of emphysema, where the dry state of the parenchyma is one of the most striking peculiarities. That some change of sound would be produced by the passage of air over comparatively dry or moist membranes, may certainly be regarded as probable; and we would simply suggest, that to one or other of these modifications may be attributed certain acoustic changes in the nature and intensity of the inspiration. The truth or falsehood of this supposition might, perhaps, be inferred from well-conducted experiments: on the living, it must always be surrounded with difficulties; but when the attention is directed to the subject, cases may present themselves by which it may be sooner or later elucidated.

TREATMENT OF FRACTURES BY THE "SOFT AND EASY" METHOD.

To the Editor of the Medical Gazette.

Sir,

I shall feel much obliged if you will make room in your excellent journal for the following remarks.

I perceive, by looking into the pages of your contemporary, that the case of double fracture of the femur, which was mentioned in my late communication to you on the subject of Mr. Radley's new mode of curing fractured limbs, has become the ground of contention between Dr. Inglis, of Castle Douglas, the writer of the case, and a member of the Dublin College of Surgeons. The Doctor states, that the bone alluded to was broken in two places on the 1st of March 1836,—that on the ninth the lower fracture appeared to be united,—that, on examining the upper fracture, the splintered pieces of bone were felt rubbing against each other with the usual grating noise,—but that on the twelfth day after the accident both fractures were united.

Now, the Irish surgeon, being utterly unable to understand how this union could take place in so short a time, says, in nine days the lower fracture was united, but, at the upper fracture, the splinters were felt rubbing against each other with the usual grating noise, *i. e.* no restorative action had commenced, and yet, on the twelfth day, we are informed that both fractures were united. This strikes him as being a little unusual,—at least it is so in Dublin.

To this the Doctor replies, that no one, except the Irish surgeon, would suppose that nine days could elapse, every thing going on well, without restorative action commencing, and that, in the next two days, this action would be complete; and farther, that such cures must be unusual in Dublin, and every place else, so long as it is usual to treat fractures by the old mode of splintering and tight bandaging.

Now, Mr. Editor, it certainly is a very easy thing for Dr. Inglis to make such assertions as the above; but does he adduce sufficient proof to satisfy the members of the profession that they are well founded? — that is the question. Let us, therefore, look into the case for a moment with an eye of scrutiny, that, knowing the truth, we may be enabled to judge justly between this gentleman and his Irish antagonist.

Every person who is acquainted with the principles of surgery, knows, I presume, that a broken bone cannot be restored to a sound state without considerable labour on the part of nature. Soon after an injury of this description has been received, she in general begins her work, and we know that she completes it in a longer or shorter time, according to the state of the injured parts, the size of the bone, the age, and the constitution of the patient. Forty days were allowed her by some of our old surgical authors, who appear to have been absurdly anxious to determine the period at which consolidation would take place; and in that space of time she certainly does often bring her labours to a close. But she is frequently more tardy in her manner of proceeding, so that a longer space than this is often requisite to enable her to finish her task; indeed, she occasionally,

through causes, some of which are involved in obscurity, either flags in her exertions, or desists altogether,—the consequence of which is that the bones in such cases remain unmnited, and false joints are formed. Under the most favourable circumstances, however, and with the best management, a simple fracture of the femur, even in the case of a patient at the age of ten or twelve years, is rarely cured in much less time than thirty days; and I know from experience that at that time the callus is often not very strong; indeed, I believe, however early callus may in some cases begin to be formed, that it seldom is converted into any thing like a firm bony substance until long after the period at which Dr. Inglis, in the case which he has published, says consolidation took place; and, if this be admitted, surely the Irish surgeon, when told that on the ninth day after the accident, in the case in question, the splintered pieces of bone at the upper fracture were felt rubbing against each other with the usual grating noise, had good reason to conclude, either that the restorative action, that is, the formation of callus, had not at that time commenced, or that it had proceeded but a very little way; and when he is farther informed that, on the twelfth day, both fractures were united, he might well, I think, observe that so great celerity in the union of broken bones was a little unusual,—at least in Dublin.

Now, taking this view of the case, how does the matter stand? Whoever looks at the whole of the circumstances must, I think, admit, if the bone actually was fractured in Dr. Inglis's case, that nature, in performing the cure, must, through some cause or other, have followed a very different and a much shorter course than that which we know she usually takes while employed in the work of uniting fractures. But, to speak the plain truth, I have strong doubts respecting the state in which this said femur really was, immediately after the accident and on the 12th day, because I know that nature is very obedient to certain laws. I know that she is not fond of wandering from her accustomed course, as she must have done in this case, if the bone was broken; in short, I know so much respecting her ways and her workings, that I cannot help thinking, however old Dr. Inglis may be as a physician, that he is but a very young surgeon, and that in his zeal for Mr. Radley's soft and easy plan of treatment (converts to a new creed being, in general, at first very dim-sighted), he may have overlooked the real nature of the case to which he has called the attention of his professional brethren.—I am, sir,

Your obedient servant,

INVESTIGATOR.

London, June 27, 1836.

ACCOUNT

OF

SOME REMARKABLE POST-MORTEM APPEARANCES OBSERVED IN A CASE OF EPILEPSY.

By WILLIAM SWEETING,
Surgeon, Bridport.

"In the autopsies of some epileptic subjects, I have traced the complaint to well-marked hypertrophy of the brain."—ANDRAL.

THE subjoined case may be regarded as an illustration of the remark just quoted:—

M. J.—— at the age of eight months, was seized with convulsions without any assignable cause, which lasted, with little or no intermission, for the space of four hours: about a month after this she sustained another attack, which, however, soon passed off: she went through the period of dentition, and other infantile disorders, easily,—was a child of ordinary mental powers, and at no time discovered any thing like a precocious development of intellect.

At the age of four years, as she was about to repeat a lesson, she was observed to stammer and look confused—the hand was twitched, and there appeared a singular shaking of the head: these symptoms soon passed off, and she went through the assigned task. About a month after this, similar symptoms were observed as she was in a place of worship, and from this time the disease assumed more decided features of epilepsy, — the fits recurring more frequently.

In the month of July last, whilst she was at Weymouth, whither her parents had taken her to try the effect of change of air, she was attacked with convulsions, which remained on her for the space of seven hours; this evidently im-

paired her faculties, and imprinted an expression of silliness on her countenance, and the epileptic fits recurred more frequently.

On the night of the 31st of March last, she was again seized with convulsions, which scarcely ceased for six days and nights, at the end of which she died, being about the age of nine years.

Conceiving that no good purpose could be answered thereby, I have not detailed the treatment employed in this case,—our remedies were directed to the relief of the brain; to a congested or otherwise disordered condition of that organ the symptoms were clearly referable; the child at no time complained of pain in the head, but the approach of an attack was usually preceded by uneasiness and pain in the stomach; at times, friction with the hand over the epigastric region averted a paroxysm.

Autopsy.—The head was of rather a large size; the skull thinner than usual, as if it had yielded to the pressure of the brain; the skull-cap generally adherent to the dura mater by slight adhesions, except in the line of the longitudinal sinus, just under the point where the coronal joins the sagittal suture: on this spot the adhesions were firm, and the dura mater considerably thickened.

The brain removed from the skull weighed THREE POUNDS, AVOIRDUPOIS; it was firm and very vascular; dura mater slightly adherent to the pia mater, and that to the arachnoid, so that in some places it was difficult to demonstrate them separately. Vessels in the convolutions very turgid.

Upon slicing the hemispheres in the usual way, the medullary portion was observed to be studded closely with red points, showing that the vessels which permeated that substance were much injected: there were also firm adhesions between the sides of the anterior lobe of each hemisphere. The choroid plexus of both sides very turgid, but more particularly on the right; the right hemisphere generally more vascular than the left; pia mater underneath the fornix (*velum interpositum*) dark, with vessels thickly ramifying upon it; pons varolii very firm: upon slicing it horizontally, the longitudinal and transverse fibres of the former, leading to the crura cerebri, the latter to the cerebellum, very evident and beautifully distinct; vessels much injected; pia mater and arachnoid were semi-opaque where these membranes cover the pons varolii: traced backwards from the left anterior clinoid process of the sphænoid to the foramen magnum, the process was somewhat elongated, terminating in a rather sharp point. There was rather more than the usual quantity of serum in the ventricles and spinal canal.

The thoracic and abdominal viscera were perfectly healthy; the stomach was carefully examined, because the child had uniformly complained of pain in the epigastrium upon the recurrence of the fits—which pain was evidently merely sympathetic.

OTITIS CHECKED BY PRESSURE ON THE COMMON CAROTID.

To the Editor of the Medical Gazette.

SIR,

IF you think the following account of a new method of treating inflammation of the ear worthy inserting in your valuable periodical, I shall feel obliged by your doing so at your convenience.

A single case has occurred to me in which it has been tried; the case happened in my own person. The auricle was hard, swollen, and painful; the meatus auditorius externus narrowed; the whole seemed increasingly painful. Acting upon the principle of diminishing the contents of the dilated vessels, I compressed the common carotid artery against the bodies of the cervical vertebræ: the pain was instantly removed. The reason of this is obvious; the pain depending upon the pressure of the loaded vessels against the minute nervous fibrillæ, as soon as this state of the part was removed by preventing the circulation through it, it must necessarily be removed also: of course, upon remitting the pressure the pain returned. But as a debilitated state of the vessels is presumed to be the cause of inflammation, it occurred to me that if I could prevent a direct circulation through the part for a sufficient length of time, the vessels would regain their lost tone, and a cure be effected. I continued, therefore, the pressure during, I suppose, about fifteen minutes, and, upon removing my finger, was agreeably surprised to find that the pain did not return.

Now in these cases, frequently, com-

mon applications fail to arrest the progress of the inflammation, suppuration of the part takes place, and, if this be the case with the internal ear, the sense of hearing is totally destroyed. Added to these things, the pain accompanying the affection is of the most distressing character; delirium and death may be the consequence. It is worth observing, then, that by the simple means here stated, the pain may be relieved at pleasure.

I may add, that on a former occasion, also, I noticed this circumstance, but did not continue the pressure long enough to affect the vessels permanently.

I am, sir,
Your obedient servant,
J. B. Melhuish.

15, Critchill Place, Hoxton,
June 19, 1836.

SYMPTOMS RESEMBLING LEAD-POISONING,

EXPERIENCED BY A PARTY OF CAPTAIN BACK'S MEN, ENGAGED IN REMOVING "VIRGIN EARTH," AT FORT RELIANCE.

To the Editor of the Medical Gazette.

Sir,

During the progress of travellers many occurrences take place which are not only worthy of the consideration of other members of the community, but are absolutely necessary to be related, in order to add to our stock of knowledge, and to afford information upon certain points, if not of universal, yet of particular interest; but, owing to a custom which prevails of not introducing incidents which do not appear to be essentially a part of the grand narrative, these circumstances are never related, and are often never presented to the public at all. Nor is the case extenuated when particular parties or professions are to be the objects of the advantage, or the public only mediately through them; for as particular professions have long been consecrated the depositories of particular kinds of knowledge, it must have been by the general consent of the world,—judging, that the information obtained thereby would be more surely propagated and brought under the exercise of practice.

It was my fortune to become acquainted with Captain Back in America, while he was engaged in his last expedition; and many circumstances of minor consequence might be adduced, by which we should both recognize each other,—the relation of which would not, perhaps, be without interest; but as, in this mercantile and money-getting country, people will not listen to such things, they must all be waived, and just so much be told as will keep the eyes and ears open for the time.

The party which Capt. Back carried out from England generally deserted him by the time he arrived at Montreal, and an arrangement was made with the government, which permitted four British artillerymen, who had volunteered for the service, to proceed with him on the expedition: and this, I believe, was no small consideration at that period of the enterprise. These men were from a detachment under my charge, and I accordingly felt considerable interest in their destiny, which, of course, interwove itself into that of the whole party. During their winter encampment at Fort Reliance, a small party of them were engaged in forming a red clay into mortar with sand, in order to raise a hut for their residence. The whole of these men so engaged, and no others, were attacked with a severe illness, which came on with violent pain in the head, attended by considerable fever; this was shortly followed by distressing pains in the abdomen, constipation, and extreme nervous depression. Captain B., who does not pretend to much information on medical topics, says that it is his opinion it was occasioned by a '*mephitic vapour*' evolved from the clay; but he had no means of testing this substance. The treatment instituted by Mr. King, the surgeon, was venesection, followed by purgatives and antimonials, a small quantity of mercury being combined: all the men recovered, but the venesection was given over after it had been tried on the first or second case. Now it is difficult to say in what the exact cause of this affection consisted; but there is no doubt that it was resident in the soil they moved, which was, unquestionably, virgin earth: the symptoms are like those produced by several of the metallic poisons, as well as some gases; and whether they arose from any composition of lead, which is very abundant in the northern parts of that continent, must, perhaps, still remain

uncertain: it would, however, be more satisfactory, should this communication meet Mr. King's eye, if he would present to the profession any information he may be in possession of though I regret to learn that separate notes of the cases were not taken. The relation here given is from Captain Back himself, who is aware of my intention to make it public; he considers it a point of consequence, and would have interwoven it in his own Appendix, could he have found a convenient place for it. If the disease be considered a complication of colica pictonum, arising from oxide of lead in the clay, it is another instance of the extreme volatility of particles of matter in a high northern latitude: unless it be imagined, that the hungry absorbents of these men might have carried it from their hands into their general system.—I am, sir,

Your obedient servant,

G. Farr, A.M.D.
Assistant Surgeon.

Woolwich,
June 23, 1836.

SIR CHARLES BELL'S REPLY

TO THE

OBSERVATIONS ON HIS CLINICAL LECTURE.

To the Editor of the Medical Gazette.

Sir,

You did me the honour of giving a report of my Clinical Lecture on "Crushing the Stone in the Bladder *. The observations of Sir Benjamin Brodie, Baron Heurteloup, M. Civiale, and our late President of the College of Surgeons, appear to call for some remarks, or, if you choose, apology, for that lecture. In this enumeration of commentators, I have called one the late President of the College, to mark his station in our society, lest that should not be discoverable in his letter.

There is a wide difference between the dissertation of a man who is the advocate of a particular measure connected with his own character and success, and the lecture of one sitting before pupils, anticipating their difficulties, and earnestly pointing out to them the occurrences which may befal them, to their extreme mortification, and the injury of their prospects during their first years of practice. I take a more confined view of a clinical lecture than some of my eminent friends, and find it impossible to make it so excursive and so pleasant. An operation is performed: it is our duty to take the occasion, whilst the pupil is animated with interest on account of the scene, to see that it makes a due impression; and especially to prevent him supposing that that is easily done, the successful practice of which has resulted from the combined endeavours of many members of the profession, and after many disappointments and much ill success.

I can very well conceive Mr. Alexander speaking of the operation of extraction of the cataract as a thing very simple and sure of success. Operating many times in a day, and for a succession of years, it is at least very natural that he should represent it as the best, most successful, and easiest to be done,—being so, indeed, in his hands. But would that be the language becoming in a teacher addressing himself to pupils? Would not the sure consequence be, ill-performed operations, disappointment, and loss of character? Is it not the duty, then, of one who even pretends to have an interest in his pupils, to tell them what has befallen others—to set before them all the difficulties of the operation, and to contrast the different methods of operating?

There is a mode of judging of what others are doing, which I think a very fair one. If I go into a cutler's shop, and ask to see the different instruments for lithotomy, and I find this man's gorget, and another man's bistoury—some blunt, some sharp, some cutting on one part of the edge and some on another; and more especially if I see a series of instruments that have undergone successive improvements by the same individual; am I not authorized to interpret this language—am I not entitled to say that the surgeon has felt his way, encountered difficulties, and is here trying to obviate them in future? If a man, for example, should cut for the stone thirty times with success, by the lateral operation, and yet perform the succeeding operation by cutting above the pubes, he is the most severe commentator on himself; for were another person to deny the truth of his assertion as to his previous success, or to object to his mode of operating, it would fall short of the severity of criticism that he has inflicted upon himself. It is in this

* See Medical Gazette, vol. xvii. p. 997.

way that I have criticised the operators in "lithotrity." Already we may find, not only in the instrument-makers' shops, but in the pawnbrokers', an endless variety of instruments for "lithotrity." I see a continual effort, by the multiplication of instruments, to avoid something that has happened. I inquire, and I do find that most formidable accidents have occurred, which it was the duty of some one to promulgate, and which it is the especial duty of an hospital surgeon to notice, and to adduce as warnings to his pupils.

If we look back to the history of our profession, what a lesson it affords us! Medicines are recommended to the public, and multitudes of successful cases that have been treated by them are brought forward, but in which the physicians have deceived themselves; the substances to which they have attributed so much virtue being now known to be inert. It is human nature to practice this delusion on itself; and so instruments are vaunted until their ingenious inventors bring something else forward, stronger, better, and safer; and then only are the defects of the former acknowledged.

Sir, I have been the advocate of crushing the stone in the bladder. I have shewn the difficulties and dangers of lithotomy, and I have contrasted them with the difficulties and dangers of "lithotrity." Looking upon the subject unbiassed, and as embracing questions paramount to all private considerations, what I have said has been believed.

I have been twitted with referring to an unfortunate accident in the operation of crushing the stone, as if I had with no friendly intention brought forward a mishap that occurred long ago, and ought altogether to have been forgotten. This is my answer: on the day, and I verily believe the very hour, in which I was delivering my lecture, a similar accident occurred. The instrument being introduced into the bladder, and a stone caught, it was found impossible to crush it, and as impossible to withdraw the instrument: it was necessary to make a cut in the perineum, and to pick out the stone from the embrace of the instrument. Is it not just that such things should be known; that the most successful operator, operating with the last improvement of his instruments, meets with these disasters?

Perhaps in clinical discourse, as well as in writing essays, we may wander from the practical question; but when the suffering patient is actually before us, and we are asked an opinion, he must be a bad, as well as a stupid man, who does not concentrate all his energies to the point at issue. I am called in to this patient, in whom the accident last referred to occurred, for the third time, the external wound being closed. I sound him, and find a rough soft stone lying at the neck of the bladder. I have the indescribable advantage of the sound-headed, ingenious, and conscientious surgeon, Mr. Copeland, being in consultation. We take all the circumstances into consideration; they are various and distressing: the patient has suffered this operation of "lithotrity;" it has been thought to have been successful, and the operator dismissed. We have, after this, sounded, and found a stone: the operation has been attempted again: the instrument has got entangled; it has been necessary to cut into the perineum; a small round mulberry calculus has been extracted: after all this, the symptoms have returned—pain in the glans penis, frequent calls to pass urine, disturbed nights, thick tough mucus deposited in the urine: he is again sounded, and an irregular soft mass of stone is discovered in the bladder. The patient is fatigued and dissatisfied with these ineffectual operations; he would now prefer lithotomy. We think it our duty to dismiss all these untoward circumstances from our minds, to bring home the case, and to say, suppose we ourselves had this calculus, we should desire to have it crushed: we recommend the patient to submit again, and to have the Baron Heurteloup once more called in. May he never have a more severe critic than he has found in me!

As to the main question of the propriety of the operation, when a fit case presented in the hospital, I performed the operation publicly. When I found the proper case under the hands of Baron Heurteloup, I conscientiously recommended him to persevere: in another case, I put my patient in the hands of Mr. Costello, and it is my duty to say that the patient perfectly recovered. What is the meaning, then, of this outcry, as if I were illiberally condemning the operation? What I have said may well have given offence,—that misfortunes have been improperly concealed; but in giving them publicity, I have done no more than my duty.

From all the consideration that I have been able to give to this subject, the comparative merits of crushing the stone in the bladder, and of the operation of lithotomy, will never be duly appreciated, until they are both performed in our public hospitals. Then I anticipate that the operation of crushing the stone will be limited to certain conditions, and that lithotomy must be performed in others; that the history of that greater operation will continue to be the subject of the highest interest in our art; and this conviction, sir, must be my apology for this very long letter.

I have the honour to be,
Your very obedient servant,
CHARLES BELL.

Brook Street,
July 3, 1836.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

Jahrbücher der in-und ausländischen gesammten Medicin. Herausgegeben von CARL CHR. SCHMIDT, M.D., &c. Jahrgang, 1836; No. VI, Leipzig. Schloss.

Encyclographie des Sciences Médicales, publiée sous la direction de M. le Dr. MARINUS. Brussels.

THE first of these works, the *Annals of Native and Foreign Medicine*, is certainly most creditable to the German periodical press: it constitutes such a specimen of industry well applied on the part of the editor and his able band of coadjutors, as we confess we have not hitherto seen equalled. It appears monthly, (each part about the size of a number of the Cyclopædia of Anatomy, but much more closely printed), and contains analyses of almost every medical paper or publication of merit appearing in any part of Europe. The writings, however, of German, English, and French authors, seem to get the preference. There are no original communications given, but the profusion of abstracts, classed according to the departments of medical science to which they belong, is almost extravagant. In the number for May, the last received, we find sixty-eight analyses of papers, and twenty-five notices of books, besides matter of a miscellaneous kind; nor are these numerous analytical articles of a superficial or merely ephemeral character: every one of them has a real signature attached, and that generally the name of some man known to the medico-literary world as fully competent to the task he undertakes. We were anxious to see how the several papers selected from this journal were treated, and we think we can safely say that the contributors to the MEDICAL GAZETTE would not be displeased with the figure they make in the Leipsic annals.

In the *Encyclographie* of Brussels, extended as it has been in its plan so as to embrace the German and English periodicals, we do not find that an equally sound discretion is exercised as to the proper papers to insert: the Brussels editor has comparatively little to do, save to point out to his printers what articles in the several journals he will have published in his own: and we should find no fault with him, did he only perform that task with moderate care and skill. But he falls far short of his Leipsic contemporary, both in diligence and usefulness. The *Jahrbücher*, in its comprehensive range, gives us the pith and marrow of every good articles appearing in the periodicals of the three countries, while the *Encyclographie* offers only a limited selection, and that not always of the best sort. Each work, however, has its value: if the Brussels journal presents us with a superabundance of French medical literature, it cannot be denied that the Leipsic one (and it is no disparagement to its merits) favours us with the substance of every thing valuable proceeding from the German press. The *Encyclographie* has the advantage of being in a language which is at present far more widely diffused than the German; yet the latter is fast gaining ground, and we do not despair of seeing the time when every student and young practitioner will be competent to avail himself of the rich sources of professional knowledge opened to him through the medium of the German tongue.

One striking feature in both these works is, their cheapness, compared with the quantity of matter which they contain. Both appear monthly, and at a price which does not put them beyond the means of the generality of medical readers. We believe the German jour-

nal is much the cheaper of the two. It may be added that the Leipsic *Jahrbücher* is now in its third year: four volumes appear in the course of twelve months; and the style of typography, paper, &c. is all that can be desired.

Zeitschrift für die gesammte Medicin. Herausgegeben, Von Deiffenbach, Fricke, und Oppenheim. Hamburg, 1836 *(The Hamburgh Medical Journal.)*

We have already given an account of the plan and general merits of our Hamburgh contemporary; and it only remains for us to say that his progress is steady and satisfactory. We could wish to find more ample information in his pages respecting *German* literature, but his object is professedly to make his countrymen better acquainted with ours, and that of France. This journal differs from that of Leipsig, just noticed, in containing in every number several original articles, contributed by one or other of the learned editors. In the first volume, lately closed, we find a paper by Fricke, on the *treatment of inflammation of the testicle by compression;* one on *extirpation of the head of the thigh bone from the acetabulum*, by Oppenheim; and one on *the value of transfusion of blood as a remedy*, by Marcinkowsky; together with other original communications. The volume now in progress contains an able essay, by Dieffenbach, on *a new method of treating fistulous openings in the male urethra*, as well as papers by Drs. Kleeberg, Platt, Behr, &c. We shall endeavour to find room for notices of some of these in future numbers.

A Dictionary of Terms employed by the French in Anatomy, Physiology, Medicine, Midwifery, Pharmacy, Chemistry, Medical Zoology, &c. with their Derivations and Synonymes in Greek, Latin, French, German, and English. By Shirley Palmer, M.D., &c. Part II. 1836.

Judging from the part before us, (for we have not been fortunate enough to see the preceding one) we should say that this is likely to be a work of great utility, particularly to the junior members of the profession. The promise of the title-page is amply fulfilled, and we cannot but admire the learned diligence of Dr. Palmer, in acquitting himself so ably of what he so arduously undertook. A specimen probably will best enable the reader to appreciate the nature of the author's performance: we take one at a venture.

"Exostose,—s. f.,—ἐξόσωσις, — exostosis, f. L.,—knochenauswuchs, m. G.: in surgical pathology, an osseous tumour developed on the surface, or in the cavity, of a bone. French writers distinguish three varieties of the disease, *l'éx eburnée*, resembling *ivory* in aspect and consistence; the laminated—*laminée;* and spongy—*spongieuse.*

"Exosmose, s. f.,—exosmosis, f. (ἔξω, outward, ὠσμος, impulse), L.: a physico-organic or vital action, by virtue of which, minute hollow organs empty themselves of their contained fluids. See Endosmose.

"Exotique, adj.,—ἐξωτικὸς, exoticus, L.,—ausländisch, exötisch, G.—exotic: an epithet applied in natural history and materia medica, to animals, plants, and medicinal agents, the products of *foreign* lands.

Exoticadenie, s. f.,—exoticadenia, f. L.,—aversion: Exoticomanie, s. f.,—exoticomania, f. L.,—excessive *predilection* for *exotic* remedies and methods of cure, — die übermässige *vorliebe* für *fremde* arzneien, *fremde* curen, u. s. w., G."

The articles in the present fasciculus extend from Corne to Huit de Chiffre, and it is announced that another, the third part, will complete the work: we have our doubts, however, that it *can* be completed in one number more, unless a double quantity of matter be given at once.

The Cyclopædia of Anatomy and Physiology. Edited by R. B. Todd, M.D. &c. Part VII.

The articles in the present number are —*Cilia*, by Dr. Sharpey; *Circulation*, by Dr. Allen Thomson; *Cirrhopoda*, by Dr. Coldstream; *Cirronosis*, by Dr. Todd; and *Conchifera*, by M. Deshayes. The same care, which we lately noticed, seems to have been bestowed on this, as on the preceding parts; and the illustrations abound as usual.

Dr. A. Thomson's view of the circulation is clear and comprehensive: his purpose was "more particularly to describe the course of the blood in the

human body, and the powers by which it is moved. and also to state the general facts ascertained regarding the function of circulation in other animals." The order accordingly adopted in the article is—first to describe the course of the blood in man; then its course in animals; in the third place, the phenomena exhibited by the blood during its motion are considered,—the properties of the organs in which it circulates, and the powers by which it is propelled; and, lastly, the more important circumstances connected with the other functions are noticed, which modify the circulation.

The article CIRRONOSIS, or as we should prefer to call it, consistently with its etymology, CIRRHONOSIS or CIRRHONOSOS, is short; we have no doubt both the name and the disease denoted by it are not very familiar to many of our readers, nor perhaps would it occur to many of them to seek an account of it in a Cyclopaedia of *Anatomy* and *Physiology:* we shall therefore take leave to copy it into our pages.

"CIRRONOSIS (κιῤῥος, *fulvus*, νοσος, *morbus*.) In a memoir, published by M. Lobstein, in the first volume of the *Répertoire d'Anatomie et de Physiologie*, for the year 1826, this term was applied to what that author considers to be a disease affecting the fœtus at an early period of intra-uterine life. The essential characteristic of the malady consists in the serous or transparent membranes being dyed of a beautiful deep golden yellow colour. 'The disease is,' says M. Lobstein, 'an internal jaundice of the peritoneum, of the pleura, of the pericardium, of the arachnoid, differing from the ordinary jaundice in that it does not affect the parenchymatous cellular tissue of organs, nor the subcutaneous tissue, nor the skin, the usual seats of that disease.'

"Lobstein published the first account of the occurrence of these appearances in two five-month fœtuses, in his *Rapports sur les travaux executés à l'Amphithéâtre d'Anatomie de Strasbourg*. Since that time additional cases were presented to his attention, from which he ascertained that the yellow staining was not confined to the serous membranes only, but also was found in the nervous tissues, especially those of the spinal marrow and encephalon. By the aid of the microscope, he perceived that the substance of the marrow seemed to be composed, as it were, of small grains of a lemon yellow colour, mixed with a white and pulpy substance, as if a very fine gold-coloured powder had been intimately mixed with a soft and semi-transparent jelly. In these cases the thoracic portion of the sympathetic also exhibited a similar colour, and the ganglia were somewhat swollen, and it was ascertained by the microscope, that the stain was equally inherent in the nervous substance of the ganglia as in that of the spinal marrow. It is impossible to remove the yellow stain from the structures in this condition, either by ablution or immersion for any length of time in alcohol or water. The intensity of the colour was not diminished in preparations which had been preserved in spirits for seventeen years, neither was it affected by the action of light.

"The difficulty of accounting for the phenomena which constitute this disease of the embryo is much increased by the fact, that cirronosis has hitherto been observed only in three or five month fœtuses. As, at this period, the biliary secretion has not begun to be formed in the usual way, we cannot attribute the occurrence of this disease to any of the causes which give rise to ordinary jaundice, so commonly met with in the fœtus at and shortly after birth. There seems, however, to be no reason to doubt that the elementary constituents of the biliary secretion may already exist in the blood at an early period of intra-uterine life, and that from them the stain may have been communicated to the serous membranes and nervous tissues. But we cannot but express our concurrence in the opinion of Andral, that cirronosis differs only in situation from the ordinary *icterus infantum*, or *neonatorum;* there being this remarkable distinction also, that the tissues which are the seat of the colour in cirronosis are rarely affected in jaundice.

"Although the observations of Lobstein were first published ten years ago, I do not find that they have been confirmed by any subsequent observer. The preceding account, therefore, of this disease, rests entirely upon his authority, and is drawn up chiefly from his paper in the *Répertoire*, already referred to.

"(*R. B. Todd.*)"

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The Medico-Botanical Pocket-Book: comprising a Compendium of Vegetable Toxicology, with coloured Figures, and an Appendix relating to Mineral and other Poisons. By G. Spratt, Surgeon, &c.

This little volume is well designed and prettily executed. The figures are good, but the information relating to each subject is of a very slight and superficial character. It is attempted, in the Appendix, to give coloured representations of the effects of re-agents on certain poisonous solutions; but some of the precipitates are incorrectly tinted; for instance, the oxalate of silver, at p. 112, and what is shown as the result of adding sulphate of iron to prussic acid, by way of a test. The Toxicology, in short, wants much correction, and the artist who colours the copies ought to be carefully superintended.

MEDICAL GAZETTE.

Saturday, July 9, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

ONE MORE PLAN OF MEDICAL REFORM.

However true may be the proverb about "hope deferred," as respects people in general, in the case of medical men we think it hardly holds good. It would seem no easy matter to make the *medical* "heart sick;" at least where common, not individual, interests are concerned. The medico-political question of reform, for example, not long ago occupied all thoughts; all were intently on the watch for the new measures which time and the hour, under the auspices of Warburton, were to bring forth. The parturition period, however (or what was expected to have proved such), passed by, and *nothing* was brought to light. Day after day elapsed, month after month—nay, we may soon reckon by years—and the Warburton-reform expectants became -- reconciled: they will assuredly not be so sanguine in future.

The truth is, that Mr. Warburton either has too many irons in the fire, or has lost all hope of giving any satisfaction to those for whom he undertook to legislate. The mass of evidence which he gathered has turned out, as we anticipated, to be too heavy for his shoulders; and not even with all the jogging and pushing he has received from various quarters, can he move a step under his weary load. Some would be thought particularly active in endeavouring to assist him, and to help him on—the Finsbury M.P., for instance, has frequently tendered his ominous aid; but the overburdened legislator knows too well the value of that kind offer, and has always sternly refused it. By the way, the *honourable* Finsburian has, we suppose, ample leisure on hands at present to allow him to interfere in matters where his services are not needed; but, of course, they are invariably declined: his own projects, he finds, do not prosper: for nothing he has yet undertaken has thriven with him: nothing has he not spoiled. The Medical Witnesses' Bill, a very simple measure, and the principle of which would be otherwise unobjectionable—unsuspected,— has, as we predicted it would, become impracticable under his management: even on his own shewing, this unlucky attempt at legislation on his part—unlucky in meeting with such an advocate—has fallen to the ground, and it is useless to think of raising it again during the present session. But to return to Mr. Warburton: that gentleman, we fancy, understands full well the difficulties of the situation in which he is placed, and wishes only to be left to his own efforts for extrication: and in that desirable repose—the only chance for restoring him to former vigour—it is truly remarkable how few

have any wish to disturb him. The "medical reform" agitation has already begun to be numbered with the things that have been: by one consent it seems to be hastening rapidly into oblivion.

Yet as there is occasionally found in such circumstances some solitary instance of a perturbed spirit walking abroad, and not very willing to be laid, so have we one of the kind even now before us: like a swallow in winter, it makes its appearance when all its companions are flitted and gone. That curiosity peculiar to naturalists prompts us to bestow on it a little attention.

Who could have expected a pamphlet on "medical reform" at this unlikely time? One there is, however, just put forth by the "author of the History of Cholera."* We recollect that the work just named was early in the field, and did good service when the epidemic prevailed; but we fear we cannot compliment the author on the kindred seasonableness of his present production.

But there is something new, perhaps it may be asked, in the substance and composition of this pamphlet? We have searched through it with the desire of finding some such novelty, but must confess our disappointment. The general scheme advocated in it is that of "one faculty,"—the old levelling system which has already been so fully discussed and exploded. Some of the details, however, are certainly curious, particularly those connected with the project of converting the two Colleges into mere clubs, and making the Surgeons a transition grade to the higher order of Physicians. Apothecaries, be it observed, are no longer to exist, or rather are to be permitted to "die out." We shall quote a passage or two.

"In the opinion of the writer, the Legislature should go with the public, and recognise a *Senior* and *Junior* rank in the profession, and none other; at the same time throwing open the College of Physicians for the reception of the Senior rank, and the College of Surgeons for the reception of the Junior. The members of the two colleges would, in that case, constitute the profession at large—for, as the mere Apothecaries are a forced growth, they should be allowed to die out with the existing generation.

"But as these colleges are at present *quite distinct* and have *no connexion with each other*, a complete change in this respect would be necessary to place their members in the relation of Senior and Junior divisions of the same body. Some mode must be suggested by which the members of the Junior would fittingly be converted into members of the Senior rank. This conversion would not involve any difficulty, provided that all medical students were, in future, obliged to pass through a common course of professional elementary education. Indeed, it might arise almost as a direct sequence. With this intention *all* students who had passed their final examinations should, *at first*, receive the title of *surgeon*, and be enrolled as members of the College of Surgeons, or, in other words, as members of the Junior rank of practitioners; and, after remaining a certain number of years in this class, they should be eligible for admission into the College of Physicians, or Senior rank."

Observe, again, the further working of this plan. Some advantages the author thinks ought to be allowed to persons who have obtained a liberal education and taken medical degrees at the Universities. What these advantages chiefly are may be gathered from the following extract:—

"The period during which young medical men should remain, as a general rule, in the Junior rank, should probably be *at least ten years;* and if, at the end of this period, they claimed admission into the Senior, the fees for this admission should perhaps *not be less* than *one hundred pounds.* This sum may appear at first sight too high, but other regulations with regard to its exaction, to be detailed hereafter, will, I expect, show that it cannot be diminished with ad-

* A Sketch of the Medical Monopolies, with a Plan of Reform. Addressed to Lord John Russell, His Majesty's Secretary of State for the Home Department. By James Kennedy, M.R. C S.L. Author of "The History of Cholera," &c. &c.

vantage. Ten years being the general period of qualification, the graduates of the universities would be considered qualified in half that time, or *five years*, and, as a further set-off for the expense and time spent in obtaining their Degrees, or general certificates of education, as well as for the education itself—the fees of admission might be reduced, in respect to them, to *fifty pounds*."

It is but fair to add, that the author does not make this money or time qualification the only one for procuring admission to the highest rank. *Professional merit*, he thinks, ought to enable its possessors to aspire to, and to obtain, a place in the Senior College,—that merit being decided on by the sanction and election of the members of the higher grade.

A further peculiarity of Mr. Kennedy's system is the following,—devised evidently with a view of obviating, as much as possible, local prejudices and distinctions merely accidental. A senior and a junior College of "the Faculty" should, he thinks, be constituted in each capital—in Dublin and in Edinburgh, as well as in London.

"Not such Colleges as now exist—the representatives of narrow, jealous, and selfish interests—but public bodies, engaged in open, generous, and exalted emulation with each other, for the benefit of the profession and the community. The members of these Colleges should be free to practise in every part of the empire. For instance, should a member of either of the London Colleges remove to Ireland, the presentation of his English credentials at the Senior or Junior College in Dublin should entitle him to be enrolled as a member there, according to his rank—acquiring in the new locality, by this simple form, *similar* rights and privileges as those members who had never left it."

We need not enter on a consideration of the author's plans of education. In what we have already submitted to the reader, we have given the prominent outlines of the plan before us; and every tyro in the profession is competent to judge whether there be any thing practical in it or not. We give Mr. Kennedy every credit for the sincerity of his views, and for the clearness and simplicity with which he has endeavoured to explain them; but the extracts just quoted supersede the necessity of comment.

There is nothing contagious, we hope, in Mr. Kennedy's example: we shall, we trust, have no more pamphlets on "reform,"—on the *faculty* plan especially, till Mr. Warburton begins once more to move. Till then let us have some respite—not only in consideration of our erewhile strenuous warfare, but in order to allow the member for Bridport what he is by all means entitled to—fair play.

COLLEGE OF PHYSICIANS.

We learn that, as we anticipated last week, two of the gentlemen to whom the Fellowship of the College of Physicians has been offered have declined it—viz. Dr. Farre and Sir Alexander Crichton. The former was so completely committed by what he had said before the Parliamentary Committee, that he could not have done otherwise without the grossest inconsistency. We understand that Dr. Farre has repeated what he stated in his evidence—namely, that he was actuated by no disrespect to the College—on the contrary, that he highly appreciated the distinction, but was prevented from accepting it by the circumstance of his accidental position. Of Sir Alex. Crichton, we only know that he is far advanced in years, and living in retirement, so that he could have no conceivable motive for availing himself of the offer of the College. These refusals, though no more than might have been expected, have an awkward appearance, and shew the disadvantage of not possessing some means of ascertaining beforehand the sentiments of the parties to be proposed. The reason said to be assigned for this, is the absolute secrecy

which it was thought right to maintain, in order to prevent canvassing, and the unpleasant feeling that might attend rejection. Certainly some, if not all, of those elected, were in perfect ignorance of it being the intention of the Council to recommend them. We still regret the absence of certain names from the list.

ARTES WAKLEYANÆ.

Our worthy and veracious contemporary of the *Lancet* is amusing at least, if not very edifying, on the subject of the recent elections to the Fellowship. Mr. Wakley professes to give a minute and particular account of all that passed on the occasion; and a very pretty mess he has made of it. Setting aside the account of the voting, &c. which are merely lies, we shall limit our observations to points which he is pleased to assure us "may be received as perfectly correct"—a tacit admission, by the way, that other parts of the report are fabricated. Now, taking this same "perfectly correct" list, we say that it is wrong in three essential points:—first, in the order in which the names are placed; secondly, in the introduction of a name (that of Dr. Forbes) which ought not to have been there; and, thirdly, in the omission of another (Sir Robert Chermside.)

But one very important disclosure is made,—and which we cannot gainsay, —namely, that "*half-crown pieces*, covered with paper, were distributed to the Fellows."—Here is bribery and corruption with a witness! But this is not all; the half-crown was not merely a bribe, but intended "to enable the voters to be recognized by private marks." Positively the honourable member for Finsbury ought to bring this before parliament; it would make an excellent subject for his particular style of eloquence. But let him do so when there is no one present acquainted with the facts, else he may be told that, so far from being "a peculiar proceeding," adopted for that night only, it is no more than what is always done, in compliance with an old usage at the Midsummer annual meeting, and that the said "half crowns rolled in paper" *were not used in balloting*, but put into the pockets of those who received them. Some people might regard this little blunder of our contemporary's as merely an illustration of what is vulgarly called finding a mare's nest, but we think it a very important statement, *because it proves that the Fellow who sent the information is very "young" indeed, and never could have been present before at the annual meeting in question.*

TRIAL FOR ALLEGED LIBEL.

The person, named Moscati, who during the last few years has contrived to acquire so much unenviable notoriety, lately brought an action against the publishers of this journal, on account of a letter from Dr. Elliotson contained in our number for April 26, 1834.

The trial came on in the King's Bench on Saturday last,—Sir Frederick Pollock conducting the prosecution, and the Attorney-General the defence. The defendants put in a plea of justification—undertaking to prove that every thing contained in the alleged libel was true. For this purpose a great number of witnesses, including Dr. Elliotson himself, were examined; and so overwhelming was the evidence, that Lord Denman stopped the trial, and directed a verdict to be given for the defendants. It will not be necessary, we imagine, for any one in future to notice the fabrications of this modern Munchausen.

Moscati brought his action *in forma pauperis;* the consequence of which is, that though the verdict is against him, the costs of the defence cannot be recovered. The Lord Chief Justice noticed this hardship, and in strong terms censured the conduct of those who had "certified" that there was any ground of action in the case. It is really "too bad" that a gentleman who is driven to vindicate his character under the foulest aspersions cast upon it by the plaintiff, should be thus put to pecuniary loss, even while he triumphantly justifies that vindication.

LECTURES

ON THE

DISEASES OF THE NERVOUS SYSTEM.

By M. Andral.

As puplished in the *Gazette des Hôpitaux*, with the approval of the learned Professor.

SECOND DIVISION.

Hitherto we have been occupied in considering those affections of the nervous system in which the perceptible organic lesions explain to a greater or less extent the functional disturbances. We are now about to enter on the consideration of a class of diseases also implicating the nervous system, but with this great difference, that here no change of structure is appreciable. Perhaps at some future period, when our means of investigation are more perfect, we may be able to detect what as yet lies hid from us.

Some of the maladies in question may nevertheless be attended by structural changes of an appreciable nature; but such instances are so rare, and so inconstant, that they do not enable us to explain the phenomena; and besides, where such changes do exist, they are never in proportion to the severity of the functional symptoms. We are, then, tempted to ask if they be really the sole and fundamental cause of what has occurred during life? The reply must be in the negative; for these lesions are not constant, on the one hand, and are not always the same in any given disease. Thus, for instance, we see tubercles in the brain produce epilepsy; while, again, we find epilepsy independent of tubercles. In such cases, may it not be fairly asked whether the structural change be the cause or the effect of the disease, or if it be more than a simple coincidence? The question is not easily answered. In such case there must have been something which predisposed the individual to the disease.

The maladies of which we have now to speak are very numerous, very different in their nature, their progress, and their symptoms, and are comprehended under the general name of *Neuroses*.

It is necessary to adopt some arrangement in the consideration of diseases differing so much from each other; and perhaps the most useful is to group together those complaints which have a certain resemblance to each other, dependent upon the functional disturbances which they produce. We shall divide them into—

1. Those characterised by disturbance of intellect.
2. Those characterised by disturbance of sensation.
3. Those characterised by disturbance of motion.
4. Those characterised by disturbance of some great function—such as nutrition, generation, &c.
5. There is in the economy an act which, according as it is accomplished in such or such a manner, produces morbid modifications, which have been characterised by the words ataxic, adynamic, &c. -- terms designating that morbid state which depends on disturbance of the vital powers, and which have their seat in the brain. This makes the 5th class.
6. In certain cases, also, the morbid element takes possession of one of the great functions of the nervous system, independently of the rest; while in other cases, on the contrary, all are affected nearly at the same time. Thus, in an attack of apoplexy—sensibility, movement, and intellect, are all implicated; and the same happens in epilepsy. This will constitute the 6th class.

First Class.—*Neuroses affecting Intellect.*

This divides itself into three separate orders. First, acute disturbance of intellect—delirium; second, chronic disturbance of the intellect—mental alienation; third, the disturbance may be not general but special—may be, indeed, limited to a single faculty, as the memory, the imagination, &c.—monomania.

ACUTE DISTURBANCES OF INTELLECT.

Delirium.

Delirium has its seat in the brain; but in what part of it, is a question. Many are of opinion that it depends on the state of the convolutions. This idea, however, is too exclusive, although it be granted that the parts of the brain situated on the surface may play an important part; yet when other portions of the brain are affected, we occasionally find delirium produced. But whatever may be its seat, the lesion is not always appreciable; and when it is, we cannot affirm that such lesion is always the same. Indeed, it is often far otherwise; for instance, we cannot say that hyperemia and anemia are identical diseases, and yet they may both give rise to delirium; while, again, delirium may take place without either of them. So congestion may in one be productive of delirium; in another, of convulsions; and in a third, of neither. I have seen two persons seized with paralysis of the face in a fortnight — one from a paroxysm of anger, the other from seeing the dead body

of his father. But it is surely improbable that in these cases the lesion of the brain was the same, — if, indeed, any actual lesion existed in either,—for whatever is capable of modifying the action of the brain, may produce delirium.

Delirium, in reference to its causes, may be distinguished into sympathetic and idiopathic.

Sympathetic delirium. — This is nothing more than the re-action of any lesion whatever upon the brain. Congestions, inflammation of a part, an over-abundant secretion, vitiated secretions, acute pain, &c.; but these different affections do not produce the same degree of delirium in all individuals: each has a manner of suffering peculiar to himself. Delirium is not always connected with a state of cerebral hyperemia,—a proof of which is, that it does not always yield to the same kind of treatment.

In the treatment, there are two indications to fulfil:—1, to combat the lesion which has caused the delirium; and, 2, to attack the delirium itself, or the nervous disturbances which follow it. It must not be supposed the abstraction of blood is the only means of counteracting delirium; although this is evidently proper in certain cases — as in hyperemia, &c. M. Dupuytren has shown that delirium, and its consequences, may often be made to cease by opium. If, then, the delirium be dependent on pain, let that be soothed; if on accumulations in the intestinal canal, then purgatives become the proper remedies. I have repeatedly seen delirium cease on the operation of two grains of tartar emetic, producing bilious vomiting. It is easy to perceive how many indications must result from different circumstances.

Idiopathic delirium.—This is far from being always the same. The causes which produce it are very numerous, and the delirium which results may be divided into two kinds. To the first belong those which consist in stimulation of the brain—in inflammation of the cerebral substance or of the membranes—in insolation and in *calentine*, a kind of delirium well known to sailors, and which is produced by the heat which navigators experience in passing through the torrid zone, and for which bleeding is the most efficacious remedy.

In the second species the causes are just the reverse of the preceding, consisting in exhaustion of the brain, &c. We see women after their confinement experience hæmorrhage from the uterus, and passing into a state of delirium, which subsides as they recover from the loss of blood. Here, assuredly, no one would say that the delirium depended upon hyperemia of the brain. The same kind of circumstance is present in nervous palpitations, dyspnœa, &c. We meet with patients worn out by some acute disease, who become delirious when they are bled; or if they be in this state already, it is aggravated by bleeding. Here, again, there is no stimulation of the brain, and we ought to be, consequently, cautious about bleeding. It would, however, be difficult to generalize; for certain individuals will find themselves better from bleeding even the thirtieth day after the appearance of the delirium; while another will not be able to bear it even the very first day. In chronic diseases, when the end draws near, we see delirium supervene; this, for instance, is what we meet with during the last two or three days of phthisis. What is to be found in the brain to account for this? Why, nothing. If we could re-establish the strength of such patients, and supply them with new blood, we might hope to put an end to the delirium, which, in fact, depends only upon weakness. On the same principle, hunger and thirst produce delirium.

Some persons also become delirious when they are deprived of their usual stimulants; and on these being again restored, the symptom ceases. I have seen women rendered delirious by merely abstracting them from the light. As to the rest, it is with other organs as with the brain; if they be not supplied with their usual stimulants they become disturbed.

Finally, delirium is in some instances the result of a perversion of the action of the brain; in others it has for its cause the introduction into the blood of certain substances, which act upon the brain. Thus active poisons, miasmata, and virus of different kinds, produce delirium: but it is to be remarked, that among those instances there are some which produce special forms of delirium: such are narcotics, camphor, alcohol, &c. Alcoholic substances act in two modes,—either producing immediately the delirium of drunkenness, and which has nothing remarkable in it; or by their continued use giving rise to what is called *delirium tremens.*

As to the treatment of delirium, this is easily understood from what was formerly said. The removal of the exciting cause ought to receive the particular attention of the practitioner.

Delirium tremens presents a peculiar physiognomy; it consists in disturbance of the intellect, and of the muscular movements; there is usually trembling and delirium both, but sometimes the former phenomenon is wanting. It may come on suddenly, during a state of perfect health, or supervene more gradually, and by slow

degrees, which is not uncommon. It may also appear as a complication of some other disease, and when it is probable that the delirium would not have come on but for the other, which then becomes an exciting cause. This is often seen in those who are habitual drunkards.

As to the symptoms, the name of the disease is a true description. The delirium is usually intense, accompanied by loquacity and agitation: there is generally but little fever, and the acceleration of the pulse which takes place is the result of the agitation.

The duration of the disease is variable; it may only last a few hours, or may continue during many days. The modes in which it terminates may be reduced to two—recovery and death. The recovery may be spontaneous, or produced by appropriate treatment. When, notwithstanding our efforts, the case ends in death, it is preceded at one time by coma, at another by paralysis, and occasionally by extreme agitation. It has been attempted to discover the anatomical lesions connected with this disease, but for the most part nothing has been found. In certain cases there has been merely some congestion, quite insufficient to account for the severe affection which had existed; in others the appreciable anatomical changes consist in a meningitis or encephalitis, but then these are to be looked upon as the consequences, not the causes, of the disease. Is it not, in fact, well known that a violent fit of anger may give rise to meningitis? and why should not delirium tremens be able to do the same? I think, therefore, that the meningitis is consequent on the delirium, and that where the death takes place very rapidly nothing is to be found.

As to treatment, various methods have been tried. The patient has been left to nature, and sometimes has recovered, but in other instances he has died. Bleeding was next tried; but I am of opinion that this ought only to be used when there is inflammation, and that it ought not to be adopted in the neuroses except where the face is injected. Often, in spite of the bleeding, a fatal termination results. The next remedy is opium, which I have administered in very large doses (90 to 100 drops of the laudanum of Rousseau in twelve hours); and I have seen patients who were furious, restored, after a few hours' sleep, to perfect sanity, and this too after bleeding had failed.

CHRONIC DISTURBANCES OF INTELLECT.

Mental Alienation.

Mental alienation results from chronic disturbance of the intellect. In the ordinary and primary form of this, there is no disturbance either of movement or sensation; these come on at a later period. The nutritive functions may be implicated, but this does not enter into the essence of the disease.

Mental alienation may be acute, and terminate speedily; but this is an exception to the general rule, and it ought not the less to be regarded as a chronic affection.

The intellect may be capable of being still exercised, although in a disordered manner; or it may be altogether abolished; and hence arise two classes of these affections:—1st, When the intellect still retains the power of performing intellectual acts, it may be affected with respect to all objects, and then the disease is called *mania;* or it may be affected only as regards one particular object, and this is called *monomania.* Of mania there is but one kind, but of monomania there are many varieties. Thus we have suicidal, errotic, and other forms of monomania. 2d, When there is a complete abolition of intellect, ideas are no longer formed; and of this there are two descriptions,—the one where the malady is congenital, constituting *idiotcy;* the other where it comes on afterwards, and then it takes the name of *dementia.*

The causes are to be looked for either in the external world, or in the disturbance of the various organs: amid the external influences the state of the atmosphere plays an important part. An elevated temperature, for instance, often favours the production of mental alienation, if it does not actually occasion it. M. Esquirol has remarked, that more patients are brought to Chaventon during the summer than in the winter. Summer holds the first place, next comes spring, then winter, and autumn. It has also been remarked, that the first setting in of cold aggravates the disease of those already insane. These observations have been made in different countries; in Italy, in England, at Paris, &c. and they apply to insanity in general. But it is during great heats more especially that insanity comes on, or manifests a deposition to relapses. Monomania and dementia are more uniformly distributed over the different months of the year, and particularly as regards the autumnal months. In some individuals, the different seasons produce differences in the form of their insanity; thus M. Esquirol saw a man, who, during the spring, was tormented with erotic insanity, in summer he was filled with ideas of grandeur, in autumn with religious phantasies, and in winter all subsided, so that he recovered his reason. In Paris, the suicidal monomania is

more frequent during the spring and autumn than during the two other seasons.

If the seasons have a great influence on the development of the disease of which we speak, they have also a great effect on it as regards its treatment; recovery taking place most frequently in autumn: and the maximum of mortality in insane persons taking place during the two last and two first months of the year. This, however, is a remark which applies to a great number of other diseases also.

Exposure to the rays of a burning sun have been known to produce insanity. The power of the moon has also had great celebrity under similar circumstances; thus, in certain countries, the insane are called *lunatics*. There is some foundation for this idea; in fact, during the time of full moon, mania undergoes an exacerbation. The fact cannot be explained, but M. Esquirol has shut up insane patients during the lunar period: he has excluded her light from them, and they have then experienced no aggravation of their madness.

It has also been observed, that insanity is more violent in the morning than at other periods of the day.

Substances taken into the alimentary canal have some effect on the production of insanity, particularly spirituous liquors; and it is said that individuals born of drunken parents are predisposed to mental disease—but this is an assertion which requires proof. Mercury has also been blamed for the appearance of mental alienation; for this purpose its use must have been very long continued, and, perhaps, other causes might equally be assigned.

The various organs may become the agents through which the mental affection is produced. There is no disease of the brain, for instance, which may not leave behind it madness as a consequence, but in this case a predisposition must have existed; for insanity is by no means a necessary consequence of every affection of the brain—nor is it necessarily preceded by any organic affection at all. Without any change in the brain it may perform its function in an inordinary manner, so that insanity is the result. I regard this cause, indeed, as a very powerful one. A violent passion for labour has been known to indicate the commencement of madness; and over-exertion of the intellect, imagination, or passions, are also causes; to which may be added disappointment—such as from the loss of a brilliant station in life. As to the rest, the predisposition to which I have alluded presents itself in such cases, and it becomes the more marked as the intellectual exertions or moral shocks are more violent and repeated. During great public calamities, revolutions, and political commotions, we see madness become frequent and violent.

Some authors have pretended that from the earliest times insanity has gone on increasing, and becoming daily more common. M. Esquirol has demonstrated the fallacy of this opinion. The number of cases has not increased comparatively, only the forms of the disease have been changed. Thus at the present day we do not see religious monomania; and M. Esquirol says, that the predominant ideas of a particular age might be judged of from the forms of insanity which have prevailed.

Are diseases of the digestive system capable of producing insanity?—Yes; for I have seen an attack of gastritis give rise to disturbance of the intellect ending in madness. Chronic diseases of the alimentary canal are also capable of originating different forms of insanity, which have a relation to the nature of the original disease: of this there is no doubt, and accordingly we see various forms of monomania, hypochondriasis, and imaginary fears, arise under their influence. Some, for instance, have a fixed impression that there is a design to poison them; others have an idea that they have got some foreign body, even something alive, in their stomachs. Such are the results of chronic gastro enteritis, and I may observe that each diseased organ occasions some different form of mania. A patient may imagine himself to be dead, where he has lost the sensibility of the skin.

The circulatory system does not exert any very conspicuous influence on the development of insanity; but great disturbances of the vascular apparatus may, nevertheless, give rise to it. In hot climates, malignant intermittents may excite mental alienation.

Whether a diseased state of respiration may cause insanity is matter of question. One physician has asserted, that both pneumonia and tubercles have this power; but I suspect he has not made his observations with accuracy.

The generative system exerts an influence which is especial in its nature, which is more marked in women than in men. In the latter, insanity has been observed as the result of venereal excesses or of rigid continence, and the cure was effected by the removal of the cause in either case. Among females, some young women become insane on the appearance of the menses—but the more common case is just the reverse, the derangement appearing when the menses do not appear at the proper period, or do so imperfectly. It is

not uncommon to meet with eccentricities of character in women during the actual period of menstruation; and some are insane during their pregnancy and recover after their delivery. During accouchement a form of insanity is frequently witnessed, which has been called puerperal mania, and which generally admits of easy cure. An abscess, or cancer of the breast, may also be added to the causes of insanity in women.

All ages are not equally liable to attacks of mental derangement; it is very uncommon before puberty, but it is very frequent between the ages of 30 and 40; it is also frequent between 40 and 50, though less so; while the periods above and below these give a gradually diminishing frequency. Such are the results presented by above 4000 recorded cases.

It is very seldom that insanity breaks out after the age of fifty, in a person who has never previously been similarly affected. Before the tenth year we only meet with idiotcy; after the seventieth it is *dementia*.

With respect to sex, the circumstances vary; and the same is the case as regards climate. Thus, in the north of France, the number of women who are insane greatly exceeds that of the men: in the south of France the numbers are equal. In Italy it is different; there, many more men than women are insane, and this is also true in England, Germany, and America. Not so in Holland.

However it may be, I ought to add that the institutions of a country have a great influence on the production of insanity. Recently, M. Favell has attributed rather an important share, in the production of insanity, to the degree of tightness with which the heads of infants are in some places bound.

EXPERIMENTS ON THE ACTION OF OXALIC ACID.

By J. W. Arnold.

These experiments were performed on dogs, cats, birds, and (chiefly) on rabbits: in the latter, the acid does not produce vomiting, and consequently it is unnecessary to tie the œsophagus. The poison was introduced into the stomach by pouring it slowly into a horn funnel attached to the outer end of an elastic tube passed down the gullet,—a mode of proceeding which makes it unnecessary to confine the animal.

The following are the general conclusions drawn from the experiments made with acid prepared and administered under various circumstances.

1. Oxalic acid is an active poison, and when given in large doses usually proves quickly fatal.

2. Its poisonous effects are uniform, and independent of extraneous admixtures, the mode of preparation, &c.

3. Its immediate effect on the nervous system is stimulant. This primary excitement is more or less rapidly succeeded by diminished vigour of the nervous functions.

4. The effect upon the heart is of the same kind, and dependant upon that produced on the nervous system; it occurs very speedily,—by a very transient state of extraordinary excitement being succeeded by diminution and ultimately by cessation of the heart's action. Similar observations are applicable to the respiratory organs.

5. The blood is peculiarly affected by oxalic acid. After large and speedily fatal doses it is fluid, uncoagulable; which is not the case with smaller and less rapidly destructive doses. This action cannot be ascribed to a chemical solution, as is sufficiently proved by its succeeding only to a quick, almost sudden death from the poison. Further, the coagulum of blood macerated at an elevated temperature, for a month together, in a solution of the acid, is not affected in this manner. It may consequently be assumed that the blood is thus affected by the acid as a result of the action of the latter on the nervous system; a supposition that will not be rejected by those physiologists, at least, who consider the blood as capable of being immediately influenced by the nervous system. The great accumulation of blood in the venous portions of the heart and vascular system is to be explained by the impaired state of respiration and circulation. Like other acids, as Stevens and Hartwig have shewn, the oxalic renders the colour of the blood dark.

6. As regards the action on the alimentary canal, it operates as a local irritant, causing inflammation and extravasation of blood,—effects which are less obvious in proportion to the rapidity with which death ensues. Black points and patches occur on the mucous surface in consequence of the chemical action on the effused blood. The solution of the mucous membrane appears also to depend on chemical causes, inasmuch as it is always more decided in proportion to the interval which elapses between death and the time of examination.

7. The best means of counteracting the operation of the poison are those which tend to its evacuation; among which, emetics, however, are the less to be recommended, as the vomiting produced by the

poison itself has little efficacy in preventing its injurious consequences. The stomach-pump is the most certain, if it can be used early enough. The employment of such bases as unite to form soluble salts with the acid, is of no service, as such salts are themselves poisonous. Magnesia and lime, on the contrary, deserve attention, as their combinations with the acid are insoluble. Stimulants, such as alcohol and camphor, have been proposed to counteract the depressing effects, particularly on the nervous system; but the rapidity of a fatal termination from large doses of the poison usually renders all aid useless.

8. Lastly, these experiments prove, what had been already rendered probable by observations on the human subject in health and disease, that neither the dilatation nor contraction of the pupil is to be considered as a simply passive condition. — *Tiedemann's Zeitschrift für Physiologie; British and Foreign Medical Review*, July, 1836.

RESIGNATION OF DR. QUAIN.

Dr. Quain has resigned the Professorship of Anatomy in the London University. Various causes are assigned for this step; but as we are unacquainted with the real one, we forbear to repeat them. We shall be curious to see whether the principle of the *Concours*, so strongly recommended by the patron of the school, will be acted upon in filling up the vacancy.

PORTRAIT OF JOHN HUNTER.

A very beautifully-executed mezzotinto print of our renowned physiologist—copied from Sharpe's larger engraving, now become exceedingly scarce—has just been published by Mr. Benham. We recommend it as a capital likeness, and an excellent specimen of the art.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

July 7, 1836.

Joseph Rees, Stratford.
William Ellis, Newent.
Arthur Wood, Nawton.
Samuel Ward, Stowmarket.
Wm. Hy. Brownson, Colchester.

LITERARY ANNOUNCEMENT.

The Speculum applied to the Diagnostic and Treatment of the Organic Diseases of the Womb: being an Inaugural Dissertation for the Degree of M.D., Glasgow. By John Balbirnie, A.M. *Just ready.*

NEW MEDICAL WORK.

The Proofs of Infanticide considered: comprising a popular Summary of the Present State of Medico-Legal Knowledge on the subject of Child-Murder. By W. Cummin, M.D. 12mo. 3s. 6d. bds.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *July* 5, 1836.

Age and Debility	17	Hooping Cough	3
Apoplexy	1	Indigestion	1
Asthma	3	Inflammation	14
Cancer	3	Bowels & Stomach	5
Childbirth	1	Brain	3
Consumption	38	Lungs and Pleura	1
Convulsions	16	Insanity	2
Croup	2	Jaundice	1
Dentition or Teething	4	Measles	6
Dropsy	7	Mortification	6
Dropsy on the Brain	9	Paralysis	1
Fever	6	Small-pox	6
Fever, Scarlet	2	Spasms	1
Fever, Typhus	1		
Hæmorrhage	1	Casualties	7
Heart, diseased	2		

Decrease of Burials, as compared with the preceding week . . 17

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N.
Longitude 0° 3′ 51″ W. *of Greenwich.*

June, 1836.	Thermometer.		Barometer.	
Thursday . 30	from 41	to 73	30·22	to 30·12
July				
Friday . . 1	63	84	30·06	30 05
Saturday . 2	56	82	30·09	30·10
Sunday . . 3	46	81	30·13	30·14
Monday . . 4	45	85	30·14	Stat.
Tuesday . . 5	53	85	30 07	30·01
Wednesday 6	54	75	29 93	30·06

Prevailing winds, S.E., S.W., and W. by N.

Generally clear, except the evening of the 30th ult. and mornings of the 5th and 6th instant; lightning in the S. and S.W. on the evenings of the 30th ult. and 4th instant; also a storm of thunder and lightning, and rain, from 1 to 8 on the morning of the 6th.

Rain fallen, .09 of an inch.

Charles Henry Adams.

NOTICES.

The name of the author of the paper on Nasal Polypi, in our last number, was W. Hall Turner, not Sawers.

"A Professional Man" will find his question fully answered in Mr. Willcock's book on the "Laws relating to the Medical Profession:" it would require more space than we can well afford, to treat satisfactorily the subject proposed by our correspondent.

"X. Y."—The whole of the Parliamentary Evidence relating to the Apothecaries' Company, may be had for *eighteen pence* (see an advertisement on our wrapper last week): so that our contemporary is evidently "hard up" for matter to fill his pages.

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, JULY 16, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XLII.

The family of *Palms* next require our attention; and I only regret that the limits of these lectures preclude me from entering so fully into its examination, as its importance, in a botanical and economical point of view, demands: but as our Materia Medica is at present furnished by it with no articles of any consequence, my notice must be very brief.

PALMACEÆ, OR PALMÆ.

Characters.—The root of palms consists of numerous simple fibres, which often penetrate a considerable depth into the earth. The stem is arborescent, generally tall, and almost always of equal diameter above and below. This latter condition is well illustrated by the cable cane (*Calamus rudentum*), the stems of which sometimes attain the almost incredible length of 500 feet. In some species, however, a swelling or dilatation is observed towards the middle or upper part. The Iriartea ventricosa, and Ceroxylon andicola*, are illustrations of this. They are almost always simple, though occasionally branched, as in the Doum palm. (fig. 110.)

Externally they are rough, with the dilated half-sheathing bases of the leaves or their scars. Internally they present the characters of a true endogenous stem, already described. The leaves arise from a terminal bud (which in some palms is a useful article of food): (fig. 111.) they are commonly very large, pinnate, or fan-shaped. In the Talipot palm (*Corypha umbraculifera*), the leaves are capacious enough to cover from fifteen to forty men. The flowers are numerous, small, hermaphrodite or unisexual; and are seated on a simple, or more frequently branched spadix, inclosed in a one or more valved membranous or coriaceous spatha. (fig. 112.) The perianth is six-parted, and in two series the three outer segments (calyx) being often smaller than the three inner (corolla). The stamina are inserted on the base of the perianth, usually six, sometimes three in number. Either the ovary is simple, with three cells, or there are three distinct ovaries. The fruit is either a berry or a drupe with fibrous flesh (drupa sicca). The seed consists of a solid albumen, in a cavity in which is lodged the embryo.

Fig. 110.—*Cucifera Thebaica, or Doum Palm, remarkable for its dichotomous stem.*

The structure of the fruit of palms is readily learned from the familiar cocoanut. Externally this consists of a thin epicarp, within which is the fibrous mesocarp,

* Medical Gazette, vol. xvii. p. 667.

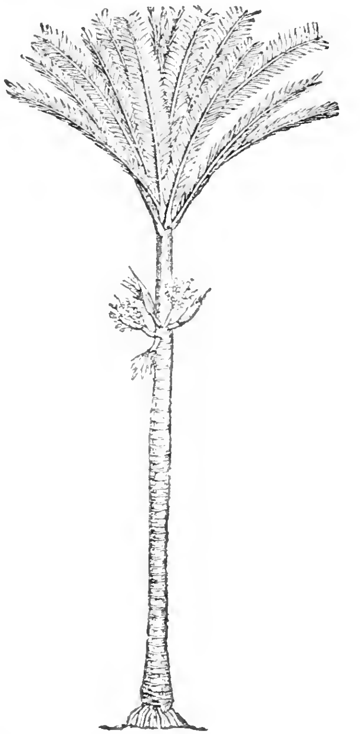

FIG. 111.—*Areca oleracea, or Cabbage Palm; so called because the unexpanded terminal bud is boiled and eaten as cabbage (Brassica oleracea).*

FIG. 112.—*Cocos nucifera, or Cocoa-nut Palm.*
a, Shews the one valved spatha, with a branched spadix.
b, The fruit, a fibrous drupe (*drupa sicca.*)

sometimes four inches thick, and composed of longitudinal fibres, contained in a soft parenchyma. The endocarp, or putamen (commonly termed the nut shell, and of which drinking cups are sometimes made) is very hard, and is perforated at its base by three holes, indicating the three normal cells of the ovarium, of which two have become obliterated. On opening the putamen, we expose the kernel or nucleus, with its coverings. This kernel consists of a fleshy edible albumen, containing the well-known cocoa nut milk (the amniotic liquor). The embryo is very small, and is lodged in a small cavity at the base of the albumen.

Ceroxylon andicola.

I have already described and figured this palm*, and the wax obtained from it.

Elais Guineensis.

This tree is a native of Guinea, but is now cultivated at Martinique and the Brazils. It belongs to *Hexandria Trigynia* in the Linnæan classification. From the pericarpial covering is obtained, by pressure, the substance known in commerce by the name of *palm oil*, and which has a solid consistence, a rich orange-yellow colour, a sweetish taste, and an agreeable odour, somewhat similar to that of the rhizome of the Florentine orris. By exposure to the light, it becomes white.

FIG. 113.—*Elais Guineensis, or the Guinea Oily Palm.*

It consists of—

Stearine	31
Elaine	69
Colouring matter	
Odorous matter	
	100

* MEDICAL GAZETTE, vol. xvii. p. 667.

In its physiological effects and uses, it agrees with the other fixed oils (that is to say, it is emollient.)

Sagus farinifera.

The substance called *sago* was first introduced into England in the year 1729. It is of an amylaceous nature, and may be obtained from trees of very different families. In the Mollucca Isles it is prepared from the *Sagus farinifera* (fig. 114), a palm which belongs to the class *Hexandria Trigynia*

FIG. 114.—*Sagus farinifera, or the Mollucca Sago Palm.*

of Linnæus. At the proper period of growth, the trees are felled, the stems cut into billets, and the feculent medulla contained in them washed out: the water, by standing, deposits the fecula; which, when dried, constitutes sago. To give it the granular character, it is made into paste with water, and passed through a sieve. The grains thus obtained are slightly torrified, by which they acquire a reddish tint.

Various species of Cycas are also said to yield sago. Thus the C. circinalis, inermis, and revoluta (fig. 115). These plants are Gymnospermous Dicotyledons, and belong to the family Cycadeæ.

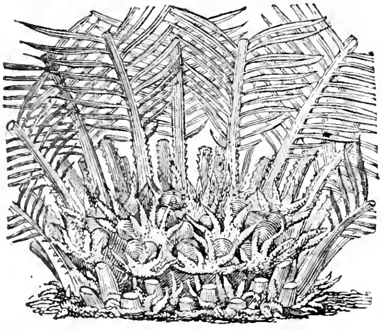

FIG. 115.—*Cycas revoluta, or Japan Sago Tree.*

Two kinds of sago are known in the market. The best is that termed *Pearl sago;* it is in small round grains, about the size of a mustard-seed, of an ashy white, or reddish colour, translucent, and without taste or smell. *Common sago* is in larger grains, and has a darker colour.

Sago has the chemical characteristics of starch; such as being insoluble in cold water, but dissolving in boiling water, the solution when cold forming a jelly.

It is nutrient, and is used as an article of food in febrile and inflammatory diseases.

Calamus Draco.

Under the name of Dragon's blood, or *Sanguis Draconis,* are met with in commerce various substances, some of them obtained from the family of Palms, as the genus Calamus; others procured from vegetables of other families. I have met with the following kinds:—

1. *Dragon's blood in sticks: Sanguis Draconis in baculis.*—In commerce this is usually termed *Dragon's blood in the reed.* It occurs in sticks of from twelve to eighteen inches long, and from a quarter to half an inch in diameter. It is supposed to be obtained from a species of Calamus, probably C. Draco. The sticks are enveloped with portions of the leaves of the Talipot palm, the Corypha umbraculifera, and are tied round with slender slips of cane (probably the stem of Calamus petræus.)

2. *Dragon's blood in oval masses.*—This is the *Sanguis Draconis in lachrymis* of Martius. It occurs in pieces of the size and shape of an olive, enveloped with the leaves of the Corypha umbraculifera, or Corypha licuala, and connected together in a row like beads in a necklace. It is common in Paris, but is rare in this country. According to Rumphius it is obtained from the fruit of Calamus Draco, by rubbing or shaking in a bag. The resinous exudation is by this means separated, and is afterwards softened by heat and made up into these masses.

3. *Dragon's blood in powder.*—Lately some Dragon's blood in powder has been imported from the East Indies, of very fine quality. I have no doubt but that it is the powder obtained from the fruit of the Calamus draco, as just described.

4. *Dragon's blood in the tear.*—This is the *Sanguis Draconis in granis* of Martius. I have only occasionally met with it. It occurs in irregular pieces, not exceeding the size of a horse-bean, and appears to be an exudation from a tree, probably the Dræcena Draco (a plant belonging to the family Liliaceæ, presently to be mentioned). Guibourt procured a Dragon's blood of si-

milar appearance from the Antilles, and he believes it therefore to be obtained from the Pterocarpus draco, a leguminous plant.

5. *Lump Dragon's blood: Sanguis Draconis in massis.*—A very inferior kind of Dragon's blood is met with in commerce, in large masses, and which is evidently a heterogeneous substance. It is probably the kind which Rumphius states is obtained by boiling the fruit of the Calamus Draco in water.

Other varieties of Dragon's blood are described in books, but I have never seen them.

Chemical properties.—Dragon's blood consists principally of a resinous body, which has been termed *draconin.* It contains also a little fixed oil, benzoic acid, and oxalate and phosphate of lime.

Effects and Uses.—Though it is contained in the Edinburgh Pharmacopœia, I believe it is never used now in medicine. It was formerly employed as an astringent, but is almost inert.

Areca Catechu.

This palm grows in India, and is indigenous in Coromandel and Malabar. Its seeds are the *areca* or *betel nuts* of commerce: they are of a conical or ovoid form, and consist principally of a horny ruminated albumen. They contain a considerable quantity of astringent matter (tannin and gallic acid), and an extract may be obtained from them having the properties of catechu. Mixed with lime and the leaves of the piper betel, they form the celebrated masticatory of the East, called *betel.* The nuts are usually cut into four equal parts; one of which is rolled up with a little lime in a leaf, and the whole chewed. The mixture acts as a sialogogue, and the saliva which is secreted is tinged red by the nut. The Indians have an idea that by this means the teeth are fastened, the gums cleaned, and the mouth cooled. It is said, however, that those who use it almost always lose their teeth before they are twenty-five years old. Peron was convinced that he preserved his health, during a long and difficult voyage, by the habitual use of the betel, while his companions who did not use it died mostly of dysentery. In this country, areca-nut charcoal is used as a tooth-powder. I know of no particular value which this can have, except that arising from the hardness of the particles.

LILIACEÆ.

The opinion of botanists as to the proper limits of this order, and consequently as to its characters, is far from being uniform. In this state of uncertainty I think it right to follow Mr. Lindley's arrangement, as being usually in the hands of students. In the sense in which the term Liliaceæ is now used, it includes Asphodeleæ (formerly regarded as a distinct family) as one of the sections of the order. The following are its leading characters: calyx and corolla confounded, coloured, and regular; stamina six, anthers opening inward; ovary superior three-celled; style one; stigma simple, or three-lobed; seeds albuminous; roots fibrous or fasciculate; leaves flat, with parallel veins.

Aloe.

The genus Aloe has a coloured tubular perianthium, composed of one piece, with a spreading six-cleft border, and a nectariferous base. The filaments, which are six in number, are inserted into the receptacle, and are about equal in length to the corolla. The capsule is superior, oblong, three-celled, and contains numerous flat angular seeds. This genus belongs to *Hexandria Monogynia* of Linnæus.

FIG. 116.—*Various species of Aloes.*

It is not easy to determine how many species of this genus are known: Sprengel limits the number to 87, which is in all probability much below the truth. In London's Encyclopædia of Plants, 99 species are enumerated as cultivated in this country; and Dr. Hooker says 170 kinds (in which, I suppose, he includes varieties) are cultivated in our greenhouses.

The *Aloe socotrina* grows abundantly on the Island of Socotra, called also Socotora, or Zocotora. Its leaves contain in peculiar vessels an abundance of a very bitter yellow juice, which, when exposed to the air, becomes violet, and ultimately brown. From this species are obtained the *Socotrine* and probably *real Hepatic Aloes* of commerce.

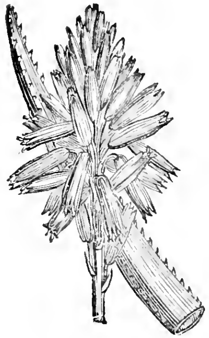

FIG. 117.—*Aloe socotrina.*

The *Aloe vulgaris* is a native of Africa, and is very common in the West India Islands. According to Dr. Sibthorp, it is the true Αλοη of Dioscorides. Under the epidermis of the leaves, in peculiar parallel vessels, is found a brownish yellow bitter resinous juice. This species yields the *Barbadoes aloes.*

The *Aloe spicata* is imperfectly known. It is extensively cultivated at the Cape of Good Hope, and is the principal, if not the sole, source of the *Cape aloes.* It is asserted in some works that the Socotrine and Cape aloes are obtained from the same species, but their physical properties are too different to allow of that supposition.

Preparation of aloes.—The finest kind of aloes is procured by the evaporation of the juice which flows spontaneously from the cut leaves. If pressure be employed to increase the quantity, the proper resinous portion is mixed with other matters, and the aloes thus obtained is of an inferior kind. The commonest kind of aloes is procured by boiling the leaves (from which the juice has been previously allowed to escape) in water.

Properties and Varieties of Aloes. 1. *Socotrine aloes.*—This is sometimes termed *Turkey aloes*, because it is usually brought by way of Smyrna: occasionally, however, it comes from Bombay: it is imported in skins, contained in chests and casks. It is of a reddish brown colour, glossy, pellucid, and having a smooth conchoidal fracture. By exposure to the air it becomes deeper coloured. Its taste is very bitter; its odour has been compared to that of myrrh, being pleasant and aromatic. The colour of the powder is bright yellow. The finest kinds of socotrine aloes which I have met with have had the semi-transparent red colour observed when we break a large fine tear of myrrh. Heated on the point of a knife in the candle, a most fragrant odour is evolved; and by distillation with water, we obtain a liquid having the fragrant odour of the aloes, but free from any bitter taste. It is the best kind of aloes, though its commercial value is at the present time inferior to Barbadoes aloes.

Several of the continental writers have confounded this kind with Cape aloes. Fée has committed this error. Sir Whitelaw Ainslie says that the greater part of the extract sold as Socotrine aloes is prepared at Melinda, in the South of Africa.

Lieut. Wellstead (in the 5th vol. of the *Journal of the Royal Geographical Society*) says that in 1833 the quantity of aloes exported from Socotra was 83 skins, or two tons. But a much larger quantity might be procured if required. The hills on the west side of the island are covered for an extent of miles with the aloe plants; and he observes that it is not likely at any future period, that the whole quantity will be collected which might be procured. He also states that the leaves are plucked at any period, and by any one who chooses to take the trouble; and after being placed in a skin, the juice is allowed to exude from them. The greater part of the Socotrine aloes received by us must be carried up the Red Sea, and in this way reach Smyrna, through Egypt.

2. *Genuine hepatic aloes.*—It is brought to us from Bombay in skins, contained in casks holding from 200 to 300 pounds. Its odour is very much the same as that of the socotrine, or perhaps it is a little less fragrant. It is distinguished from the latter kind of aloes by its opacity and its liver colour. The similarity of the odour of the socotrine and hepatic aloes leads to the suspicion that they are obtained from the same plant; and which is further confirmed by the two being sometimes brought over mixed, the socotrine forming a vein in a cask of the hepatic aloes. By digestion in rectified spirit of wine, a yellowish granular powder (in appearance something like lycopodium) is obtained, which is insoluble in water, alcohol, æther, and dilute sulphuric acid, but is readily soluble in a solution of caustic potash, forming a red-coloured liquid.

3. *Barbadoes aloes.*—This is the *hepatic aloes of many writers.* It might be termed, in opposition to the other kinds, *gourd aloes*, since it is always imported from Barbadoes or Jamaica in gourds, weighing from 60 to 70 pounds, or even more than this. It varies in colour from a dark-brown or black, to a reddish-brown or liver colour: even in the same gourd a difference of colour is occasionally observed. The fracture also varies, sometimes being dull, at other times glossy. Its unpleasant odour (which is much increased by breathing on it) will always distinguish it from the foregoing kinds: its powder is of a dull olive-yellow colour. This kind of aloes is obtained from the Aloe vulgaris.

4. *Cape aloes, Aloe lucida, or shining aloes.*—This kind is imported, as its name indicates, from the Cape of Good Hope, where it is procured from the Aloe spicata (and probably also from other species.) It is brought over in chests and skins, the latter being preferred, as the aloes contained therein are usually purer and more glossy. It has a shining resinous appearance, of a deep brown colour, with a greenish tint, and a glossy or resinous fracture: its edges, or thin laminæ, viewed by transmitted light, have a yellowish-red or ruby colour; its odour is stronger and more disagreeable than the Barbadoes aloes; its powder is greenish yellow. Some of the commoner kinds of Cape aloes have a rough fracture.

Occasionally Cape aloes have been imported of a reddish-brown colour, and opaque, and, in fact, having the same appearance as the genuine hepatic; and about five years since an experienced dealer bartered 3 lbs. of Cape aloes for 1 lb. of what he thought to be the genuine hepatic aloes, but which turned out to be a fine sort of Cape aloes. I presume this is the kind which Professor Guibourt, to whom I sent a specimen of it, terms *Aloès hépatique faux.* Its odour instantly recognises it.

The following is about the present relative value of these kinds of aloes:—

	£.	s.	d.
Socotrine aloes, per cwt. ..	18	0	0
Real hepatic aloes	12	0	0
Barbadoes aloes..........	32	0	0
Cape aloes	2	0	0

The foregoing are the kinds of aloes usually met with in English commerce. Other varieties, however, are described; but I have been able to obtain the following only:—

5. *Fœtid, horse, or caballine aloes.*—This is now very rare: I am indebted to Professor Guibourt for my specimens of it; he tells me it has also become very scarce in France. It is an impure sort, having a blackish aspect, and being mixed with various impurities. It is said to be obtained by boiling the leaves which have been previously used for procuring the finer kinds.

6. *Mocha aloes.*—Under this name I have received a sample of aloes which has all the characters usually assigned to the Barbadoes aloe, but is mixed with various foreign matters.

7. *Indian aloes.*—I have received two samples of Indian aloes from my friend, Mr. Royle. (*a.*) One of them corresponds with that alluded to by Sir Whitelaw Ainslie, who says it resembles Barbadoes aloes. It came from the northern parts of India, where it is common in the bazaars. (*b.*) The other kind has the same dark colour; it came from Guzerat.

Chemical composition.—The principal constituent of aloes is a bitter extractive matter, called by some *Aloe-bitter;* by Pfaff, *Aloesin;* by Braconnot, *Resino-Amer.* The other constituent is termed by Trommsdorf, Bouillon La Grange, and Vogel, a *resin;* by Braconnot, the *puce-coloured principle;* while Berzelius regards it as consisting principally of *apothéme*,—(that is, as extractive altered by the air.) It certainly does not appear to me to be a resin.

Socotrine Aloes.*	*Trommsdorf.*	*La Grange and Vogel.*	*Winckler.*	*Braconnot.*	
Aloesin	74·4	68	50	(Résino-amere)..	73
Resin	25·0	32	50	(Puce-coloured principle) ..	26
Gallic acid	a trace	..	..		
Fibre	0·6	..	..	Impurities	1
Volatile oil	....	traces	..		
	100·0	100	100		100
Hepatic Aloes.*					
Aloesin	81·25	52	60		
Resin	6·25	42	35		
Albumen............	12·50	6	5		
Gallic acid	a trace	..	..		
	100·00	100	100		

* It must be recollected that the continental writers frequently confound *Socotrine* with *Cape* aloes, and the *genuine hepatic or Bombay aloes* with *liver-coloured Barbadoes aloes*, so that the terms applied above are not to be relied on.

Nearly the whole of pure aloes is soluble in boiling water: but as the liquid cools, that portion which is called resin, puce-coloured principle, or apothême, deposits. The cold decoction of Cape aloes is much lighter coloured than that of Socotrine or Hepatic, or Barbadoes aloes. The latter kind of aloes forms the deepest coloured decoction.

Alcohol is also a good solvent for aloes, for it takes up both principles. All the four kinds of aloes just mentioned contain a principle neither soluble in water, nor in alcohol. This is usually termed vegetable albumen. In hepatic aloes it is much lighter coloured than in other kinds.

Winckler regards aloes as a kind of neutral vegetable salt, in which a peculiar colouring matter represents the acid constituent; and two substances, one resinous, the other bitter, the basic constituents. Meissner asserts that he obtained a crystalline alkaloid from aloes, and which he terms *Aloine*.

Guyton Morveau and Fabroni have obtained a fine violet colour from the juice of the aloe, which has been proposed as an agent for dyeing silk. Fabroni says it is formed by the action of the oxygen of the air on the aloe juice.

The preparation called in the London Pharmacopœia *extractum aloës purificatum*, is procured by macerating aloes in boiling water, then evaporating the strained solution. Two objects are here attained: the mechanical impurities being got rid of, we procure an extract of more uniform strength; and, in the second place, the substance called resin, puce-coloured matter, or apothême, is in part removed. The advantage of getting rid of this is, it is said, to render the mass less irritating, but I doubt the correctness of the statement.

Physiological effects.—Taken internally in small doses, aloes acts as a tonic to the alimentary canal, assisting the digestive process, strengthening the muscular fibres, and promoting the secretions, especially that of the liver, which organ it is thought specifically to influence. In large doses it acts as a purgative. There are, however, some peculiarities attending its cathartic operation deserving of notice. In the first place, these effects are not so speedily produced as by some other purgatives; for eight, twelve, and sometimes twenty-four hours elapse, before they take place. Secondly, a large dose of aloes is apt to produce heat and irritation about the rectum, and, in those troubled with hæmorrhoids, it not unfrequently causes a discharge of blood. Moreover, the frequent employment of aloes may, it is said, produce hæmorrhoids in those not previously having them; and Fallopius tells us, that of 100 persons who used aloes as a purgative, 90 were affected with this disease. The menstrual discharge is said to be increased by it; and in the male, Dr. Wedekind tells us that it sometimes occasions erection. The same author also states, that febrile symptoms (quick pulse, abdominal heat, and dryness of the mouth) are produced by it, and that the continued use of strong doses sometimes gives rise to serious hæmorrhages.

Socotrine aloes is said not to be so apt to occasion hæmorrhoids as the Barbadoes kind. Some years since, Dr. Clutterbuck instituted numerous experiments which I witnessed, to determine the effects of the different kinds of aloes, but was unable to perceive any difference in their operation.

Modus operandi.—The purgative effects of aloes do not arise merely from their local action in the alimentary canal, since this effect is sometimes produced when the medicine has not been applied to the canal. Thus Monro tells us, that the tincture of aloes applied to a caries of the bone produced purging: it is also said, that an aloetic pill used as a stimulant to an issue had a similar effect; lastly, applied to a blistered surface, it has the same operation. So that the purgative action of aloes appears to be of a specific kind.

According to Dr. Wedekind, the operation of aloes depends on the increased secretion of bile, which is produced by its specific action on the liver. He founds this opinion on the results of various experiments. Thus he says, that if aloes be added to purgatives (a laxative infusion and sulphate of soda) whose operation is speedy, its effects do not take place for some hours after those caused by the other purgatives; and he also says, the evacuations in the second purging differ from those of the first both in appearance and smell. Moreover, as long as the stools were white or grey in icterus, the aloes did not purge even when exhibited in large doses; but the purgative effect supervened immediately the fæcal matter began to contain bile, proving that the presence of bile in the intestinal canal is a necessary condition of the purgative effect of aloes.

In all probability, the increased secretion of bile, the irritation about the rectum, the disposition to hæmorrhoids, and the vascular excitement of the sexual organs, all of which are said to be produced by aloes, are the effects of a stimulant action exerted by this medicine over the venous system of the abdomen.

Uses.—The uses of aloes may be readily inferred from the remarks already made. It is evidently not adapted to those cases where a speedy effect is required—and, therefore, it is useless to add it to

purgatives with the view of quickening their operation. Its use is principally indicated where there is a scanty secretion of bile—in constipation, depending on or accompanied by, diminished sensibility of the large intestines, and in disordered conditions of the menstrual functions, depending on atony of the uterus. On the other hand, its employment is contra-indicated in inflammatory conditions of the liver, in biliary calculi, in organic diseases of the liver, in mechanical impediments to the passage of the blood through the branches of the portal veins, in hæmorrhoids, in prolapsus ani, in vascular excitement of the uterus, menorrhagia, pregnancy, &c. It will be unnecessary, I conceive, to say much of the uses of aloes in particular cases, after these general remarks; I shall, therefore, be very brief on this subject.

1. In loss of appetite, and dyspepsia, depending on a debilitated condition of the digestive organs, accompanied by costiveness, but unattended with any signs of local irritation, aloes may be given in small doses as a stomachic.

2. In habitual costiveness, depending on deficiency of bile, or on a sluggish condition of the large intestines—particularly in hypochondriacal or studious persons, or in those whose habits or occupations are sedentary—aloes, given in sufficient doses to purge, will be found a very useful medicine.

3. To irritate the rectum, and thereby to produce the hæmorrhoidal discharge, aloes is sometimes employed. The principles on which it is used, will be readily comprehended by the following remarks:—Serious affections of the head, or of other parts, have sometimes disappeared on the appearance of the hæmorrhoidal flux; and, therefore, in persons who have been subject to this discharge, but in whom it has stopped, it is sometimes adviseable to attempt its re-establishment, with the view of relieving other more serious disorders. In such cases, full doses of aloes are exhibited.

4. To promote the secretion of bile where this is deficient, and where this deficiency does not arise from hepatic inflammation — as in some forms of jaundice which are unconnected with biliary calculi, inflammation, mechanical obstruction of the ducts, &c.

5. To excite the menstrual discharge, where the deficiency of this evacuation is unconnected with inflammation, but appears to arise from a want of sufficient energy in the uterus: Cullen, however, remarks, that he has seldom observed aloes to have an emmenagogue effect.

6. As an anthelmintic, aloes has been found efficacious principally in ascarides.

7. Lastly, aloes has sometimes been used as an external application; for example, in caries, in chronic indolent ulcers, in chronic diseases of the eye, &c.

Administration.—Aloes, perhaps, is best exhibited in substance, on account of its nauseous taste; and in this way may be given alone or in combination with other purgative substances. Cullen recommends it to be given alone, but probably rather on theoretical than practical grounds. The dose is from five grains to a scruple. In the London Pharmacopœia we have two compound aloetic pills: one (the *pilulæ alöes compositæ*) composed of the extract of aloes, extract of gentian, and oil of carraway; the other, usually termed pilulæ Rufi (*pilulæ alöes cum myrrha*), consisting of the extract of aloes, saffron, and myrrh. Besides these aloes enters into the composition of the *pilulæ cambogiæ compositæ*, and the *extractum colocynthidis compositum.* In a pulverulent form, we have only one preparation of aloes in the London Pharmacopœia—namely, the *pulvis alöes compositus*, composed of the extract of aloes, guaiacum, and compound cinnamon powder. The dose of any of these preparations is the same—namely, from ten to twenty grains.

The *decoctum alöes compositum* is the only watery solution of aloes which is officinal. It contains, besides the extract of aloes, subcarbonate of potash, myrrh, saffron, extract of liquorice, and compound tincture of cardamoms. It is a mild cathartic, and may be given in doses of from half an ounce to two ounces.

Of spirituous solutions we have several. The *tinctura alöes* contains the extracts of aloes and liquorice, dissolved in dilute spirit. Its dose is half an ounce to an ounce and a half. The *tinctura alöes composita* contains, besides the extract of aloes, saffron and tincture of myrrh. Its dose is one drachm to three. The *vinum alöes* is, in fact, a kind of compound tincture, made of extract of aloes, canella bark, proof spirit, and water. Its dose is from one to two drachms.

Scilla maritima.

History.—I have, on a former occasion, mentioned that the squill, or sea onion, was held in such high estimation by the ancient Ægyptians, that they erected a temple, where it was worshipped, under the name of κρομμυον. They used it, we are told, in dropsical affections.

Characters.—The root of this plant consists of numerous thick fleshy fibres, arising from the under part of the bulb. This bulb, though usually called in the shops *radix scillæ*, is, in fact, a subterraneous leaf bud, and consists of concentric scales (forming a bulbus tunicatus), which are thick, white, and juicy internally, but are thinner, drier, and of a brownish-red co-

lour, externally. These scales are attached to a very short stem, which gives rise, at its lower part, to the root fibres: this stem is usually called the orbicular plate, or the plateau. Squill bulbs are ovate, and so large that they weigh from one to four pounds each. In the summer there arises out of the bulb a simple, round, smooth, peduncle (called a scape), two or three feet long, at the top of which the flowers form a raceme.

At the base of the pedicles, are small, linear, twisted bracteæ. The perianth consists of six ovate, spreading, white, deciduous pieces. The stamina are six in number, inserted into the base of the sepals—than which they are somewhat shorter. The filaments are oblong, greenish, and incumbent. The ovarium is ovate, the style short, the stigma simple. The fruit is an oval smooth capsule, marked with three furrows, three-celled, and containing many flat, rounded, black seeds. The leaves are of the kind called radical, and appear after the flower; they are from twelve to eighteen inches long, smooth, lanceolate, and of a deep green colour. In the Linnæan arrangement, the plant belongs to *Hexandria Monogynia*.

This plant grows on the shores of the Mediterranean,—namely, Spain, France, Sicily, Africa, &c Navarino has long been celebrated for its squills. In its native soil, the plant flowers about the month of August.

Physical properties of the bulbs.—The fresh bulbs are as large as a child's head, and when imported, are preserved in sand. Their juice is very acrid, and capable of vesicating. The bulbs are odourless, but have a mucilaginous acrid taste.

For medicinal use, the intermediate scales of the bulb should be sliced and dried by a gentle heat. By this means the volatile acrid matter is in part got rid of, and the pieces have a bitter, with very little of the acrid taste. When thoroughly dried, they must be carefully preserved in a dry place, as they strongly attract moisture.

Two kinds of squills are described and met with in commerce,—the *red* and the *white*. The first is preferred in France, but in this country the white is almost exclusively employed. The finest white squills is imported from the Mediterranean in the dried state.

Chemical composition.—The activity of fresh squills depends, it is believed, on the presence of two substances—one usually termed the *volatile acrid matter*, the other denominated *scillitin*, or the *bitter principle of squills*.

(*a.*) *Volatile acrid matter.*—It is well known that squill, in the recent state, is very acrid; and, when applied to the skin, causes irritation, inflammation, and even vesication. By drying, the greater part of this acridity is got rid of, and hence the acrid principle is usually described as being of a volatile nature; and in confirmation of its volatility, Athanasius states, that two ounces of water distilled from fresh squills, caused the death of a dog in six hours. However, by others, its volatility is denied; and Vogel states, that six ounces of water distilled from fresh squills had no effect on dogs. Buchner, in his "*Toxikologie*," says, that besides the bitter scillitin, squill contains, according to his experiments, another principle, which is combined with phosphate of lime, and which is capable of exciting itching and inflammation. This acrid matter, says he, may be easily decomposed, but it is not volatile, as is generally supposed.

(16.) *Scillitin.*—The substance to which Vogel gave the name of Scillitin is a whitish transparent deliquescent substance, which, when dry, has a resinous fracture, and may be easily rubbed to powder. Its taste is bitter, and subsequently sweetish. It readily dissolves in water, spirit of wine, and acetic acid. The substance usually sold under the name of scillitin is a thick liquid, in appearance exactly resembling treacle.

Here are three analyses of squills.

Vogel's analysis of Squills, dried at 212° F.

Scillitin, with some sugar	35
Tannin	24
Gum	6
Woody fibre, and some citrate (and perhaps tartrate) of lime	30
Acrid volatile matter	
Loss	5
	100

Tilloy's analysis of dried and fresh Squills.

Acrid bitter resinous extractive (*Scillitin*).
Uncrystallizable sugar.
Gum.
Fatty matter.
Piquant, very fugaceous matter.

Buchner's analysis of fresh Squill bulb juice.
(Quoted from the *Pharmaceutishe Waarenkunde* of Goebel and Kunze.)

Peculiar bitter extractive	9·47
Mucilage	3·09
Gelatinous matter (Traganthine?)	0·94
Phosphate of lime	0·31
Fibrous matter	3·38
Water	79·01
Astringent acid	traces.
Loss	4·40
	100·60

Physiological effects.—(*a*). *On animals.*—From Orfila's experiments on animals, he infers that the fatal effects of squill depend chiefly on its absorption, and action on the nervous system, and in consequence of which the respiration is accelerated. In addition, however, it acts as a local irritant, and when swallowed causes nausea and vomiting.

(*b*.) *On man.*—In *small doses*, as from one to five grains, it increases the secretion of the gastro-intestinal, pulmonary, and urino-genital mucous membranes. Sometimes it acts on the skin, and promotes sweat; at other times it stimulates the kidneys, and produces diuresis. In some cases it is said to have reduced the frequency of the pulse to 40 beats per minute. The long-continued use of squill gives rise to an alteration of the functions of the digestive organs, characterized by loss of appetite, difficult digestion, &c. In *larger doses*, as from five to ten or fifteen grains, it produces nausea and vomiting. In *excessive doses* it acts as a narcotico-acrid poison, and causes vomiting, purging, griping pain, bloody urine, convulsions, and death. Twenty-four grains of the powder have proved fatal. In a case related by Lange, a tea-spoonful caused death; and on examination after death, inflammation and ulceration of the stomach were observed.

Use.—The following are the principal uses of squill :—

1. *As an emetic*, in hooping-cough and croup, it has by some been preferred to other substances of this class; but the uncertainty of its effects has always been an objection to its use. In some cases a large dose will hardly cause nausea; in others, a small dose has created violent vomiting.

2. *In dropsies* it has been principally employed as a diuretic, in those cases where no inflammatory symptoms were present. I believe it is best given in doses of from three to five grains, so as to excite a little nausea, which Van Swieten considered (and I believe justly) as facilitating its diuretic effect. Home states that the action of squill on the kidneys is promoted by its effect on the alimentary canal, but Cullen denies it. Calomel is usually regarded as a good adjunct to promote the diuretic effect of squills.

3. *In pulmonary affections* of a chronic kind, such as chronic catarrh, or peripneumonia, humid asthma, winter cough, &c. squill is used as an expectorant, sometimes with advantage.

Administration.—In the form of powder, squill is given as an expectorant, in doses of from one to two or three grains,—as a diuretic, from one to five grains,—and as an emetic, in doses of about ten grains. We have several solutions of squills : thus, the *tinctura scillæ*, which is made with proof spirit, is given in doses of from ten minims to a drachm; the *acetum scillæ*, to the extent of two drachms, or even more. The *oxymel scillæ* is used as an expectorant; the dose is one or two drachms. The *compound pills of squill* contain ginger, soap, and ammoniacum, besides the squill; from five to ten grains may be taken as an expectorant.

Antidotes.—Cases of poisoning by squills must be treated on general principles, for I am not acquainted with any antidote. The first object will be, of course, to evacuate the stomach, and the second to allay the inflammatory symptoms which may have supervened.

Allium.

The genus Allium contains three well-known species; namely, A. sativum, or garlic, A. porrum, or the leek, and A. cepa, or the onion, all of which have been or are employed in medicine. The parts of these plants used are the subterraneous leaf-buds, commonly called bulbs; all three contain a volatile acrid matter, and they agree very much in the nature of their effects. They belong to *Hexandria Monogynia* of the Linnæan arrangement.

1. *Allium sativum*, or garlic, contains a yellow volatile oil. It acts as a local irritant, and, when swallowed, operates as a stimulant, expectorant, and diuretic; the volatile oil becomes absorbed, and may be detected in the breath. It has been used in dropsies, chronic catarrhs, and in worms, as an anthelmintic.

2. *Allium cepa*, or the onion, also owes its leading property to a volatile oil.

3. *Allium porrum*, or the leek, may be regarded rather as an aliment than a medicine.

Dracæna Draco.

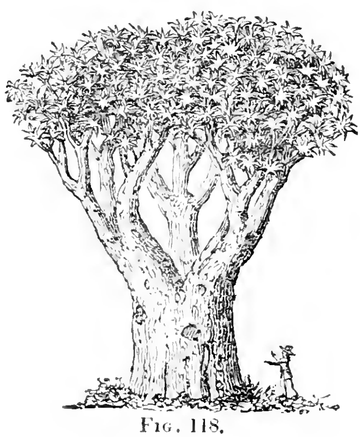

FIG. 118.

This is one of the trees enumerated as yielding Dragon's blood. It is said that a liquid exudes spontaneously from the stem, and condenses into red tears, soft at first, but afterwards hard and friable. This account agrees with the appearance and properties of the Dragon's blood in the tear, already mentioned under the head of palms.

In the Canary Isles this tree arrives at its greatest perfection; and in the small town of Orotava is a very celebrated specimen of it, which is 45 feet in circumference a little above the root, and at 10 feet high is said to have a diameter of 12 feet. In A. D. 1400 it is said to have been as large as it now is; so that, like the Baobab trees, it is regarded as one of the oldest inhabitants of the earth.

A TABULAR VIEW OF THE ACTION OF REAGENTS ON URINE,

IN DIFFERENT DISEASES;

With Observations.

By R. H. Brett, M.R.C.S.L.

With respect to the reagents employed in the following tables, it is necessary to observe what indications they afford. The litmus and turmeric speak for themselves, being employed to ascertain whether the urine under examination be acid, alkaline, or neutral. In the second column, the colour of the deposit, together with its chemical nature, as also the colour of the urine, are put down. With regard to the colour of the latter, it will be noticed that the greater number of the specimens are marked as natural,—by which is meant, urine not *materially* darker or lighter in colour than healthy urine; for as this secretion, even in health, differs considerably at different periods even of the same day, and also at different times under the use of certain fluid ingesta, as regards colour, those specimens only have been marked as pale or high-coloured which possessed these properties in a striking degree. In the third column, the action of heat before filtration is stated, in order to observe what effect a boiling temperature might have upon the deposit, if such existed; or, in the absence of the latter, what change mere heat might effect. In the fourth column is noticed the action of heat after filtration; for in many cases the effect of mere heat upon the soluble matters contained in urine cannot be well appreciated until that fluid has been freed from any deposit which may render it turbid. In the fifth column is found acetic acid; and as this reagent very rarely indeed troubles urine, its indications are almost entirely negative; when, however, albumen exists in considerable quantity, if the acetic acid be added without producing any change, it may be concluded that the albumen is not united with the alkaline base. Nitric acid, in the next column, is employed mainly for detecting albumen. Ammonia, which comes next, points out the existence or absence of earthy phosphatic salts. Corrosive sublimate may be regarded as an auxiliary test for discovering albumen; it also is capable of throwing down mucus, certain extractives, and phosphoric acid. Alum also produces a precipitate in albuminous urine; but as it also combines with the phosphoric acid, most specimens of urine are altered by it. Tinct. galls is capable of precipitating albumen, extractives, and mucus. Perchloride of iron is a delicate test for the alkaline phosphatic salts.

The specific gravity of urine varies so considerably both in health as well as in disease, that it is only under certain circumstances that it can be looked upon as indicative of any particular morbid condition of the system. Thus the specific gravity of urine in all essential points healthy, will vary considerably, according as the temperature of the external atmosphere is favourable or adverse to the cutaneous transpiration—according to whether the body be in exercise or in a state of repose—and also according to the nature and quantity of the fluid ingesta. Accordingly we find that the specific gravity of healthy urine will take a very extensive range: thus it may be as low as 1004 or 1005, and it will be found sometimes even as high as 1025 or 1030; it will not frequently, however, be found so high as 1030, and is perhaps more generally found a little below 1025.

It must, therefore, be obvious, if this statement be correct, that any degree of specific gravity between these extremes cannot in the abstract be considered as of any importance in pointing out any particular departure from the healthy state of the system; and

BEHAVIOUR OF URINE TOWARDS REAGENTS.

Litmus or Turmeric paper.	Colour of Deposit, &c. and Colour of Urine.	Heat before Filtration.	Heat after Filtration.	Acetic Acid.	Nitric Acid.	Ammonia.	Corrosive Sublimate.	Alum.	Tinct. Galls.	Perchloride Iron.	Sp. Gr.	Disease.
1. Reddens litmus	Deposit pale salmon-colour; urine natural	Almost entirely cleared.	No change	No change	No change	A precipitate	No change	Precipitate removed by nitric acid	A troubling	A precipitate	1·024	Dyspepsia, with rheumatic pains.
2. Reddens litmus	Very pale salmon; urine natural	Almost cleared	No change	No change	No change	A precipitate	No change	Precipitate removed by nitric acid	A troubling	A precipitate	1·020	Dyspepsia.
3. Reddens litmus	Rich salmon-colour, urine greenish-brown.	Partly cleared	Slight troubling not removed by nitric acid	No change	No change	A precipitate	No change	Scarcely a troubling	A troubling	A precipitate	1·025	Jaundice.
4. Reddens litmus	Dirty pink; urine natural	Partly cleared	Slight troubling not removed by nitric acid	Slight troubling	No change	A precipitate	A troubling	A troubling	Slight troubling	A precipitate	1·025	Obscure abdominal tumor.
5. Reddens litmus	Pale fawn; urine natural	Cleared in great measure before reaching boiling point	Coagulated by boiling	A slight troubling	A marked turbidity	A precipitate	A marked troubling	A precipitate	A precipitate	A precipitate	1·020	General anasarca.
6. Reddens litmus	Light brick-red; urine deeper than natural	Becomes slightly turbid.	Becomes slightly turbid; not removed by nitric acid	No change	No change	A precipitate	A very slight troubling	No change	A slight troubling	A precipitate	1·025	Gout.
7. Reddens litmus	Pale fawn; urine pale	Nearly entirely cleared	No change	No change	No change	A precipitate	A turbidity	A slight troubling	A slight troubling	A precipitate	1·020	—
8. Reddens litmus	Light pink; urine rather deeper coloured than natural	Partly cleared	No change	No change	No change	A precipitate	No change	No change	A troubling	A precipitate	1·030	Ascites and general anasarca
9. Reddens litmus	Pale pink; urine natural	Partly cleared	Slight turbidity, not removed by nitric acid	No change	No change	A precipitate	A precipitate	A turbidity	No change	A precipitate	1·030	Rheumatism, with slight heart affection.
10. Reddens litmus	Fawn-colour; urine natural	Almost entirely cleared	Slight turbidity, removed by nitric acid	No change	No change	A precipitate	No change	A troubling	No change	A precipitate	1·025	Dyspepsia.
11. Reddens litmus	Very pale, very like the phosphates; urine pale	Almost entirely cleared	No change	No change	No change	A precipitate	No change	A troubling	A troubling	A precipitate	1·020	Morbus cordis.
12. Reddens litmus	Deep pink; urine orange-yellow	Partly cleared	Becomes turbid; not cleared by nitric acid	A troubling after a short time	A troubling after a very short time	A precipitate	A turbidity	A turbidity	A turbidity	A precipitate	1·020	Hepatic abscess.
13. Reddens litmus	Very pale fawn; urine natural	Nearly cleared	No change	No change	No change	A turbidity	A troubling	A marked turbidity	A troubling	A precipitate	1·035	Hysteria.
14. Reddens litmus	Fawn-coloured deposit; urine natural	Cleared in great measure	A turbidity, removed by nitric acid	No change	No change	A turbidity	A marked turbidity	A marked turbidity	A troubling	A precipitate	1·035	Spinal disease.
15. Reddens litmus	Very pale fawn; urine pale	Nearly entirely cleared	A scarcely appreciable trou-	No change	No change	A precipitate	Scarcely an apprecia-	A marked turbidity	A turbidity	A precipitate	1·030	Chorea.

16. Reddens litmus	Slight pink tinge; urine natural	Partly cleared	A turbidity, not removed by nitric acid	A troubling	A turbidity	A turbidity	A turbidity	No change	A troubling	A precipitate	—	Affection of kidney and bladder.
17. Reddens litmus	Pink; urine natural	Partly cleared	Turbidity, not removed by nitric acid	A troubling	A turbidity	A turbidity	A marked turbidity	A marked turbidity	A marked turbidity	A precipitate	1·020	Anasarca.
18. Reddens litmus	Deep fawn; urine natural	Partly cleared	A marked turpidity, not removed by nitric acid	A troubling	A turbidity	A turbidity	A turbidity	A turbidity	A marked turbidity	A precipitate	1·020	—
19. Neutral	Yellowish green pus; urine pale	Increases the turbidity	Coagulates	A troubling	A copious precipitate	A bare troubling	A precipitate	A precipitate	A precipitate	A precipitate	1·015	Disease of bladder.
20. Reddens turmeric	Yellowish green pus; urine pale	Increases the turbidity	Coagulates	A troubling	A copious precipitate	A bare troubling	A turbidity	A precipitate	A precipitate	A precipitate	1·015	Disease of kidney and bladder.
21. Reddens litmus	Brick-red granular lithic acid; urine darker than natural	No change	No change	No marked change	No change	A precipitate	A turbidity	A troubling	No change	No change	1·027	Chorea.
22. Reddens litmus	Fawn-colour; urine natural	Cleared in great measure	No change	No change	No change	A precipitate	A turbidity	A troubling	No change	A precipitate	1·026	—
23. Reddens litmus	Deep fawn; urine natural	Cleared in great measure	No change	No change	No change	A precipitate	A precipitate	A turbidity	No marked change	A precipitate	1·041	—
24. Reddens litmus	White mucus, more than in healthy quantity; urine pale	No change	No change	A mere troubling	No change	A precipitate	A precipitate	A turbidity	No change	A precipitate	1·022	Epilepsy and hysteria.
25. Reddens litmus	Pink colour; urine natural	Cleared in great measure	A turpidity removed by nitric acid	No change	No change	A precipitate	A precipitate	A precipitate	A troubling	A precipitate	—	—
26. Reddens litmus	Mucous cloud	No change	No change	No change	No change	A mere troubling	No change	A turbidity	A troubling	A troubling	1·015	—
27. Reddens litmus	Mucus, with small quantity of red granular lithic acid; urine natural	No change	No change	No change	No change	A turbidity	A turbidity	No change	No change	A precipitate	1·051	Diabetes some weeks after treatment.
28. Reddens litmus	No deposit; urine pale	No change	No change	No change	No change	A troubling	No change	No change	No change	No change	1·040	Diabetes.
29. Reddens litmus	Slight white caseous deposit; urine pale	No change	No change	No change	No change	A troubling	No change	No change	No change	A slight turbidity	1·040	Diabetes ten days after treatment.
30. Neutral	White mucus; urine pale	A turbidity	A precipitate removed by nitric acid.	No change	No change	A turbidity	A precipitate	A turbidity	A troubling	A precipitate	1·011	Obscure disease of kidney and bladder.
31. Reddens litmus	Red particles of blood and mucus; urine very high coloured	Increased turbidity	A precipitate	A troubling	A precipitate	A troubling	A precipitate	A precipitate	A precipitate	A precipitate	1·014	Disease of kidney.
32. Reddens litmus	Pale yellow lithates; urine natural	Cleared in great measure	A precipitate removed by nitric acid	No change	No change	A turbidity	A troubling	A turbidity	A turbidity	A precipitate	1·027	Inflammatory ascites.

BEHAVIOUR OF URINE TOWARDS REAGENTS.

Litmus or Turmeric Paper.	Colour of Deposit, &c. and Colour of Urine.	Heat before Filtration.	Heat after Filtration.	Acetic Acid.	Nitric Acid.	Ammonia.	Corrosive Sublimate.	Alum.	Tinct. Gall.	Perchloride Iron.	Sp. Gr.	Disease.
33. Reddens litmus	White caseous; urine pale	Increased turbidity	A precipitate not removed by nitric acid	No change	A troubling	No marked change	No change	No change	A troubling	No change	1·035	Diabetes.
34. Reddens litmus	Yellowish green pus; urine pale	Increase of turbidity	Coagulates	A precipitate, removed by an excess of acid	A precipitate	A mere troubling	A precipitate	A precipitate	A precipitate	A precipitate	1·018	Enlarged prostate, stricture, &c.
35. Faintly reddens litmus	No deposit; urine almost as colourless as distilled water	No change	No change	No change	No change	Scarcely a troubling	A troubling	No change	No change	No change	1·006	Diabetes insipidus.
36. Reddens litmus	Ochre-yellow lithates; urine natural.	Cleared in great measure	No change	No change	No change	A precipitate	A precipitate	A precipitate	A precipitate	A precipitate	—	Hysteria.
37. Reddens litmus	Light pink; urine natural	Cleared in great measure	Slight turbidity removed by nitric acid	No change	No change	A precipitate	No change	No change	A turbidity	A precipitate	1·030	Obscure kidney disease.
38. Reddens litmus	Caseous deposit; urine pale	No change	A very slight troubling, removed by nitric acid	No change	No change	Scarcely a troubling	No change	No change	A mere troubling	No change	1·035	Diabetes.
39. Reddens litmus	Pink lithates, and a little mucous or caseous matter; urine natural	Cleared in great measure	No change	No change	No change	A turbidity	A troubling	No change	A troubling	A turbidity	1·045	Diabetes, some time under treatment.
40. Reddens litmus	White caseous matter or mucus; urine pale	No change	No change	No change	No change	A troubling	No change	No change	No change	No change	1·037	Diabetes, only under treatment a day or two.
41. Reddens litmus	Only turbid after keeping some hours; urine yellowish-green	Flocculent precipitate, not removed by nitric acid	A turbidity; no increase of green colour	A turbidity; slight increase of green colour	In small quantity, a uniform emerald-green; in larger quantity an amethystine colour; in still larger quantity, with heat, a pale lemon-colour, no flocculi being thrown down	A troubling	A turbidity	A turbidity	A troubling	A turbidity and increase of green colour	1·012	Icterus.
42. Reddens litmus	No deposit; urine natural	A mere troubling	A turbidity, not removed by	No change	A troubling	A troubling	A turbidity	No change	No change	A precipitate	1·040	Diabetes, a week under

reddens litmus	Mucous cloud of health; urine nearly as colourless as distilled water	No change	No change	No change	No change	No change	A troubling	No change	No change	No change	1·003	Diabetes insipidus.
44.	Caseous or mucous deposit; urine natural	A troubling	A troubling, not removed by nitric acid	No change	No turbidity	A troubling	A troubling	No change	A very slight troubling	No change	1·046	Diabetes.
45. Reddens litmus	No deposit; urine pale	No change	No change	No change	No change	No change	No change	No change	No change	No change	1·040	Diabetes.
46. Reddens litmus	White caseous or mucous deposit; urine pale	No change	No change	No change	No turbidity	A turbidity	A mere troubling	No change	No change	No change	1·045	Diabetes.
47. Slightly reddens litmus	White crystalline triple phosphate; urine pale	A turbidity	A turbidity, removed by nitric acid	No change	No change	A turbidity	A turbidity	A turbidity	A turbidity	A precipitate	1·007	Dyspepsia.
48. Reddens litmus	White mucous deposit; urine pale	A precipitate	A precipitate, not removed by nitric acid	No change	A precipitate	No change	A troubling	No change	A precipitate	No change	1·010	——
49. Reddens litmus	White caseous or mucous deposit	No change	No change	No change	No troubling	A mere troubling	A troubling	No change	No change	No change	1·043	Diabetes.
50. Reddens litmus	No deposit; urine pale colour	A coagulation	A coagulation, not removed by nitric acid	No change	A precipitate	A mere troubling	A precipitate	No change	A precipitate	No change	——	——
51. Faintly reddens litmus	No deposit; nearly as colourless as water	No change	No change	No change	No change	A mere troubling	A troubling	No change	No change	No change	1·005	Diabetes insipidus.
52. Neutral when first passed; alkaline some time after	White and ropy, becoming crystalline on drying; urine pale	A turbidity, in great measure removed by nitric acid, and excess of the acid renders it turbid again	The same as before filtration	Effervescence, no turbidity	An effervescence and turbidity when added in excess	A troubling	A precipitate	A precipitate	A precipitate	A precipitate	1·010	Dyspepsia.
53. Reddens litmus	No deposit; urine pale	Turbidity, not removed by nitric acid	The same as before filtration	A turbidity	A turbidity	A troubling	A precipitate	A precipitate	A turbidity	A precipitate	1·016	——
54. Reddens litmus	Mucous deposit; urine pale	A turbidity	A turbidity, removed by nitric acid	No change	No change	A turbidity	A precipitate	A precipitate	A turbidity	A precipitate	1·015	Dysuria.
55. Reddens litmus	Pale yellow lithates; urine natural	No change	No change	No change	No change	A turbidity	A turbidity	A precipitate	A turbidity	A precipitate	——	Dyspepsia.
56. Reddens litmus	Light fawn-coloured lithates; urine natural	Partly cleared	A turbidity, not removed by nitric acid	No change	A turbidity	A turbidity	A slight turbidity	A precipitate	A precipitate	A precipitate	1·026	Dyspepsia.
57. Reddens litmus	White mucus; urine dark colour	A turbidity	A turbidity, removed by nitric acid	No change	No change	A precipitate	A precipitate	A precipitate	No change	A precipitate	1·016	Bilious vomiting.
58. Reddens litmus	Fawn-coloured lithates; urine natural	Renders it clear	No change	No change	A brown coloration; no precipitate; starch when added produced a blue colour	A precipitate	A turbidity	A precipitate	A turbidity	A precipitate	1·025	Abdominal tumor.

BEHAVIOUR OF URINE TOWARDS REAGENTS.

Litmus or Turmeric Paper.	Colour of Deposit, &c. and Colour of Urine.	Heat before Filtration.	Heat after Filtration.	Acetic Acid.	Nitric Acid.	Ammonia.	Corrosive Sublimate.	Alum.	Tinct. Galls.	Perchloride of Iron.	Sp. Gr.	Disease.
59. Neutral	White phosphatic deposit; urine high-coloured	Increased turbidity	A turbidity, removed by nitric acid	No change	No change	A turbidity	A precipitate	A troubling	A mere troubling	A precipitate	1·020	Billous vomiting.
60. Reddens litmus	Mucous cloud; urine natural	No change	No change	No change	No change	A troubling	A precipitate	A precipitate	A mere troubling	A precipitate	1·010	Phthisis.
61. Reddens litmus	Pale lithic acid, with mucous cloud; urine natural	No change	No change	No change	No change	A precipitate	No change	A precipitate	A turbidity	A precipitate	1·025	Amenorrhœa.
62. Reddens litmus	White mucous deposit, with a little earthy phosphate	A precipitate	A precipitate, removed by nitric acid	No change	No change	A precipitate	A precipitate	A precipitate	A turbidity	A precipitate	1·018	Billous vomiting.
63. Reddens litmus	No deposit	No change	No change	No change	No change	A precipitate	A troubling	A troubling	A troubling	A precipitate	1·015	Bilious vomiting.
64. Reddens litmus	Mucous cloud; urine natural	No change	No change	No change	No change	A troubling	No change	A precipitate	A precipitate	A precipitate	1·020	Ovarian tumor.
65. Reddens litmus	Mucous cloud; urine natural	No change	No change	No change	No change	A troubling	A turbidity	A turbidity	A mere troubling	A precipitate	1·010	Chorea.
66. Reddens litmus	Mucous cloud; urine natural	No change	No change	No change	No change	A turbidity	A precipitate	A mere troubling	A troubling	A turbidity	1·010	Phthisis.
67. Reddens litmus	Mucous cloud; urine natural	No change	No change	No change	No change	A turbidity	A precipitate	A precipitate	A mere troubling	A precipitate	1·015	Phthisis.
68. Reddens litmus	Pale pink lithates; urine natural	Cleared in great measure	No change	No change	No change	A precipitate	A precipitate	A precipitate	A mere troubling	A precipitate	1·020	Chronic rheumatism.
69. Reddens litmus	Fawn-coloured lithates; urine natural	Rendered only partially clear	No change	No change	No change	A precipitate	A precipitate	A precipitate	No change	A precipitate	1·016	Cynanche tonsillaris.
70. Reddens litmus	No deposit; urine natural	No change	No change	No change	No change	A precipitate	A precipitate	No change	No change	A precipitate	1·010	Tape worm.
71. Reddens litmus	No deposit; urine natural	No change	No change	No change	No change	A precipitate	A turbidity	A turbidity	A troubling	A precipitate	1·010	Chlorosis.
72. Reddens litmus	Mucus, tinged with biliary-colouring matter	No evident alteration	A troubling	A troubling	A troubling and play of colours, as in specimen 41	A precipitate	A troubling	A troubling	A troubling	A precipitate	1·028	Bilious vomiting, and symptoms of gall-stones.
73. Reddens litmus	Healthy mucous cloud, with granular lithic acid	No change	No change	No change	No change	A precipitate	A mere troubling	A turbidity	A troubling	A precipitate	1·015	Bilious vomiting from the same patient as specimens 57, 59, 62.
74. Reddens litmus	White deposit of caseous matter; urine pale and milky	No change	No change	No change	No change	A troubling	A turbidity	No change	No change	No turbidity, but communicated a deep reddish tint	1·036	Diabetes.

it is only when the specific gravity mounts above 1030 or 1035, that we have any thing like clear evidence of a decided morbid condition of the secretion, and consequently of the general system, or some particular part of it. When the specific gravity of the urine is as high as 1040, or even 1037, we may generally conclude either that the secretion contains saccharine matter, or an inordinate proportion of urea. Further means for distinguishing these two conditions from each other will be noticed presently. As far as I know, there is only one morbid state of the system in which the specific gravity of the urine is uniformly low, viz. diabetes insipidus. By far the greater number of specimens of urine, both those obtained in a state of health as well as those in disease, possess an acid reaction: thus, out of seventy-four specimens, taken indiscriminately, five only were not acid. In those cases where, in consequence of the proportion of free acid present being very inconsiderable, litmus paper is scarcely, or not at all acted upon, the better way is to add some of the urine to water which has been rendered blue by a drop or two of tinct. of litmus, taking care that the latter be not alkaline: a very minute quantity of free acid may thus be detected by the reddening action it produces upon the litmus tincture. If, however, we wish to estimate the quantity of free acid present in any specimen of urine, the following method, recommended by Berzelius, should be had recourse to: — A very weak solution of caustic ammonia must be taken, the quantity of volatile alkali contained in it being previously known, which is easily done by supersaturating a given weight of the fluid by muriatic acid, and weighing the muriate of ammonia obtained by evaporation, from which salt can be estimated the quantity of free ammonia existing in the fluid. A certain measure of the urine to be examined is then mixed with tinct. of turnsole or tinct. of litmus, care being taken that the tincture contains no free alkali, until it becomes distinctly red; the solution of ammonia must then be cautiously added, until the fluid begins to assume a blue colour. The quantity of alkali employed will point out the quantity of free acid. Those specimens of urine depositing lithic acid, or the lithates, generally contain the largest proportion of free acid. In healthy urine, however, the quantity will vary considerably, depending upon different circumstances: thus, urine voided in the morning, after remaining in the bladder during the night, and perhaps slowly secreted, will be found, for equal bulks, to contain more acid than that voided after a meal, or during any particular period of the day.

That the acid condition of urine is not depending solely upon a non-combined volatile acid, is shewn by the fact, that litmus paper reddened by the fluid does not recover its blue colour when dried at a temperature even considerably above the ordinary atmospheric one. The acids existing in urine in the healthy condition of that secretion, and in a state capable of exerting their action on vegetable blues, are the lithic, muriatic, phosphoric, and carbonic. By reference to the tables, it will be seen that by far the most frequent aberration from the apparently healthy condition of the urine, is that in which the secretion yields a deposit of the lithates. Urine of this description is either natural, or somewhat darker in colour; but is never, I believe, found decidedly paler than in health. When the deposit is of a deep pink, or deep fawn colour, the urine itself is commonly found high coloured. The specific gravity of such urine is, generally speaking, higher than that of any other urine, saving those specimens which contain sugar, or a very great excess of urea. The specific gravity is most commonly about 1025; in some cases it mounts up to 1035; it is rarely found lower than 1020. Urine of this description rarely undergoes any change after filtration, by boiling, or the addition of nitric acid; when this change does take place, it points out an albuminous condition of the fluid: thus, out of thirty specimens of urine depositing the lithates, only six were affected by the above reagents, and then only in a slight degree. Corrosive sublimate very frequently, although not constantly, produces a precipitate in urine of this nature: thus, out of the thirty specimens just referred to, twenty were precipitated by corrosive sublimate, although only six were really albuminous. The same may be said of alum: out of thirty specimens, twenty-four were precipitated by this reagent, six only of these being albuminous. In almost all cases where alum causes a precipitate, tinct. galls

does the same, although not from the same cause. Percholoride of iron always produces a precipitate in urine depositing the lithates. It occasionally, although not very frequently, happens, that urine of this description, after filtration, becomes turbid, from the application of heat, either below or after it has reached the boiling point; and this may arise—1st, from the coagulation of albumen; 2dly, from the precipitation of a peculiar mucoid substance, noticed on a former occasion; and, thirdly, from the deposition of the earthy phosphates. In the two first instances, the precipitate will not be removed by the addition of a drop or two of nitric acid; in the last, the precipitate is instantly dissolved. When the urine is rendered turbid both by heat and nitric acid, it is albuminous; when it is rendered turbid by heat equal to the boiling point of the fluid, the turbidity not being removed by nitric acid, and the nitric acid *per se* not producing a turbidity, it contains the mucoid substance. Five out of thirty specimens of urine of the lithate kind contained this peculiar organic matter, and seven yielded a deposition of the phosphates by boiling. As far as I have been able to observe, urine of this description is not deficient in urea; when concentrated by evaporation to about one-third of its original bulk, it yields abundant crystalline plates of nitrate of urea, when mixed with an equal quantity by measure of nitric acid. Neither does it undergo that change by decomposition which renders it alkaline until after a considerable time; unless, indeed, it be exposed to a somewhat high temperature. Three or four specimens of urine depositing the lithates were kept in bottles, about two-thirds full, and loosely corked, from the 17th February to the 20th May. At the expiration of this period, a small quantity of a substance not unlike ordinary mould was observed on the surface of the fluid. All the specimens, however, were as acid as when first passed, and did not appear to have lost any urea *.

A glance at the preceding tables will be sufficient to shew that the diseased conditions of the system associated with this state of urine, are exceedinly various; and although, in all these cases, the kidneys must be considered as performing their functions in an unhealthy manner, still the symptoms are in many instances not at all referrible to these organs. There is reason to believe, that although this deposit occasionally takes place from the urine of individuals suffering from very different diseases, still, in such cases, the digestive organs are almost constantly found more or less disordered. In cases of mere dyspepsia, the urine is very frequently indeed found loaded with lithates—for the most part the pale fawn or yellowish coloured; and this state of urine will sometimes appear and disappear suddenly: thus an individual, whose urine has remained always perfectly clear for hours after emission, shall commit some error in diet, and in a very short time the urine shall deposit abundantly the lithates on one morning; on the following morning the fluid shall remain as clear as heretofore. Mental disquietude, independently of errors in diet, being well known to influence the digestive functions, will not unfrequently be followed by a lithate deposit in the urine. There are, perhaps, no condi-

* Since I published my papers on the different deposits met with in the urine, and the mode of distinguishing them, I have had occasion to notice the constant presence of oxide of iron in those deposits which are essentially composed of the lithates, as also in the urine from which such deposits took place; I shall therefore state, in this place, the reasons which first induced me to suspect the existence of this metallic oxide under such circumstances, and the mode of procuring it,—the more particularly, because I am not aware that the fact has been observed, or, if observed, I cannot find that it has been made public. Having incinerated a portion of a urinary calculus, composed mainly of the lithates, with some lithic acid, I was surprised to find that the ash, after all the carbonaceous matters had been driven off, was of a very light brown colour: it dissolved entirely in dilute muriatic acid, yielding, by evaporation, a yellow-coloured solution, from which red flocculi were obtained by supersaturation with ammonia, and a fine deep blue colour instantly struck by the ferrocyanate of potass, proving unequivocally the presence of a no very inconsiderable quantity of oxide of iron. This led me to incinerate all the specimens I could obtain of the lithate deposits; and in all I readily obtained marked indications of the existence of the same oxide. The reason why this has been overlooked, I conceive may be accounted for by the fact, that when small portions only of a calculous concretion of the lithic kind, or deposit of the same nature, have been incinerated, the ash appears perfectly white, and therefore has not been suspected to contain any ferruginous matter; but when the portion incinerated is more considerable,—say some few grains,—the ash will almost always possess a more or less light brown tinge. In order to satisfy oneself, however, that this oxide exists, a very small proportion of any lithate deposit is quite sufficient; for although the ash may appear white, still, if it be boiled in diluted muriatic acid, by evaporation of the fluid a yellowish coloured solution will be obtained, from which the iron may be thrown down by the usual reagents.

tions of the system so constantly associated with this state of urine as those in which the gouty or rheumatic diathesis prevails,—where, indeed, a disordered state of the digestive functions is sufficiently manifest. In hepatic congestion, and in gastric irritation, such a condition of the urinary fluid may frequently be met with. In cases of ascites, especially those connected with, and probably depending on, a diseased liver, the urine will be found pretty constantly abounding in the lithates, mostly of the deep pink colour.

With regard to the evidence afforded by this particular state of urine, as to the probability of calculous concretions forming in the kidneys or bladder, it may be considered, in the majority of cases, at least, as negativing the idea; for I presume it will not be too much to say, that where one case occurs, of calculus in the kidney or bladder, with, at the same time, a lithate deposit in the urine, more than one hundred cases will be found where the same deposition takes place without any symptoms to warrant the conclusion that a calculous concretion is present in any part of the urinary apparatus. From the concurrent testimony of those who have written on calculous affections, it appears pretty evident that free lithic acid forms by far the greater part of the nuclei of urinary calculi; it would therefore seem, that in the early stages, at least, of calculous formation, especially of the lithic kind, by far the most frequent, a deposit of free uncombined lithic acid would most probably be found to take place from the urine. It must not, however, be supposed, that because the deposit is of the lithate kind, no calculous concretion can exist, for it is quite possible that the early period of the disease has passed, and that the deposit, which was originally lithic acid, has given place to that of the lithates; so that the resulting concretion would have an uncombined lithic acid nucleus enveloped in the lithates. Considering, then, the frequency of lithate deposits, and the comparative rarity of free lithic acid—considering, also, that uncombined lithic acid forms the nucleus of the greater number of calculi, and that calculi are found rarely consisting exclusively of the lithates—bearing in mind also the fact, that symptoms of renal or vesical disease are rarely found connected with the mere deposition of the lithates—we are, I think, justified in concluding that a deposition in the urine, uniformly consisting of lithates, unaccompanied or preceded by any notable quantity of free lithic acid, rather indicates a morbid condition of the stomach and digestive organs than that peculiar state of kidney which admits of the formation of calculous concretions. It is not, however, for a moment denied that the lithates do frequently co-exist in calculi with free lithic acid; and also that they do occasionally, although very rarely, constitute the entire bulk of a concretion; it never, perhaps, happens that a calculus of any size consists of one acid, or organic or earthy salt. It would be interesting, and, I doubt not, important too, to ascertain what proportion calculi, composed mainly or exclusively of free lithic acid, bear to those which are essentially made up of the lithate of ammonia or lithates; but it unfortunately happens, that in the published account of calculi in different collections, a distinction is not made, they being all indiscriminately classed under the title of lithic calculi. Dr. Yelloly, indeed, in his excellent papers on the subject of calculous concretions, in the Philosophical Transactions, has arranged them according to the number of ingredients which they contain; but although the tables there drawn up give an account of the constituents entering into each calculus, yet they do not admit of a sufficiently accurate deduction as to the number of concretions which essentially consist of uncombined lithic acid, compared with those which are principally composed of lithate of ammonia or the lithates. I think, however, that in all probability a careful analysis of a great number of urinary calculi, considering the ready solubility of the alkaline and earthy lithates, and the comparative insolubility of lithic acid, would show that the great bulk of calculous concretions consisted of free lithic acid. In speaking of urine, and the deposits which take place from it, care should be taken to distinguish those which are composed essentially of the lithates, from those which are almost or entirely formed of free crystalline lithic acid; for, as before noticed, the free lithic acid deposit, more especially when abundant and continued, may fairly lead to the strong suspicion of the existence of, or peculiar tendency to, the forma-

tion of, calculous concretions; whereas the deposition of the lithates, when we have reason to believe that such deposition is not associated with, or preceded by, that of uncombined lithic acid, is rather indicative of disordered digestive function than that disordered state of kidney which allows of calculous formation. Urine letting fall crystalline lithic acid, is always possessed of considerable acidity; its specific gravity is much the same as that of urine containing the lithates, and, as far as I have been able to observe, its behaviour towards re-agents does not materially differ. It may be kept also for a considerable time without manifesting any very decided evidences of decomposition; so that, like that description of urine last mentioned, it will be found to exert a decided acid re-action, and to possess its ordinary proportion of urea, after it has been kept for two or three months only partially excluded from the air. Healthy urine, a short time after emission, deposits a delicate nebulous-looking substance, which is considered to be mucus obtained from the lining membrane of the bladder: in affections more especially of the urinary bladder, where that organ has become the seat of irritation, from whatever cause, an inordinate quantity of mucus is voided with the urine: it is not, however, by any means an unfrequent occurrence to meet with urine containing a much larger share of mucus than belongs to it in a healthy condition, without any symptoms of disease either of the kidneys or bladder. The urine, in some of these cases, puts on an appearance not unlike thin gruel, and occasionally the deposit has a strong resemblance to the pale lithates: it is not, however, removeable by heat. Such urine is for the most part pale, and only faintly reddens litmus paper; its specific gravity is commonly low — about 1·010; sometimes, however, reaching 1·018, or 1·020: for equal bulks, it contains less urea than healthy urine. Urine of this description is occasionally rendered turbid by heat; sometimes from an albuminous, at others from a phosphatic condition. The turbidity in some cases in not very apparent, until the fluid has been boiled for some time; in such cases that peculiar form of mucus already alluded to, seems to be precipitated. This condition of the urinary secretion is not necessarily connected with any marked derangement either of the digestive or urinary apparatus. It is, however, occasionally found preceding the deposition either of phosphate of lime, or the mixed phosphates, more frequently, I believe, the former, and in such cases it will generally be found that the urine after filtration is rendered turbid by heat, in consequence of the precipitation of the earthy phosphate. Specimen 57 of the tables affords one instance out of several I have observed of this. I shall have occasion to speak of this again when noticing phosphatic urine in particular. It may be observed that when urine depositing a more than healthy proportion of mucus, also yields a phosphatic precipitate by heat, ammonia produces a more abundant precipitate than it does, either in healthy urine, or in those specimens of mucoid urine not rendered turbid by a phosphatic deposition by the application of heat. The deposition of the phosphatic salts from urine by standing, is by no means a frequent occurrence; out of 74 specimens of urine, contained in the tables, there are only 4 of this description, and 3 only of these, from different individuals. Phosphatic urine is generally paler than healthy urine; this, however, is not invariably the case. Thus specimens 57 and 59 of the tables, both obtained from the same individual, were of a darker colour than healthy urine; so much so was this the case in specimen 57, that bile was suspected to be present, but could not be detected. The specific gravity of phosphatic urine is generally low; this is more particularly, I think, observable in the pale varieties. Dr. Prout says that is is occasionally as low as 1001 or 1002. I have never seen it lower than 1006 or 1007. When the urine is dark coloured, it is observed to be sometimes not lower than 1018 or 1020: in such cases the phosphatic precipitate has been simply phosphate of lime, without being mixed with the triple phosphate. Phosphatic urine, whether paler or darker in colour than healthy urine, may be found either strongly alkaline in its reaction on vegetable colours, faintly alkaline, neutral, or faintly acid, never strongly acid: when examined immediately, or in a very short time after emission, it will, I believe, be rarely found alkaline in a very marked degree, except in those cases where there is a serious disorder of the kidneys or bladder, or a paralytic condi-

tion of the latter organ from some severe injury to the lumbar nerves. In this last, however, it may be a question whether the alkaline condition of the urine is to be attributed to the mere remora of the secretion in the bladder, from a loss of expulsive energy in that organ, or to a deranged secretive function of the kidneys themselves. It is difficult to understand in what way the mere delay of otherwise healthy urine in the bladder for a few hours should cause such a decomposition in the fluid, as to give rise to the abundant production of ammonia, especially when it is remembered that in the healthy state of the body, the urinary secretion may remain for many hours in the bladder, and still be acid when passed, and that the same healthy fluid may be kept in closed vessels for many hours, at a temperature not much inferior to that of the body, without undergoing decomposition. Can it be supposed that the urinary bladder possesses some unknown and peculiar property when deprived of its nervous energy of exciting speedy decomposition in its contained fluid, or that it is itself, independently of the kidneys, capable of affording to its contents an alkaline impregnation? Neither of these notions is, I conceive, at all tenable. Is it not more reasonable to suppose that in an ammoniacal condition of the urine, the kidneys are always the organs at fault; that in the cases of paralysis of the bladder, the same cause which destroyed, either partially or wholly, the nervous energy of that organ, also impaired the nervous endowment of the kidneys themselves, and consequently so deranged their secernent functions, as to cause them to substitute for the healthy and acid secretion, a fluid in the highest degree turbid from mucus, and alkaline from ammonia. But to return to the chemical characters of phosphatic urine. If muriatic acid be dropped into urine which is turbid from phosphatic deposition, it will generally be found that the urine is rendered only partially clear; this depends upon the fact that the phosphatic earthy salts are intimately blended with mucus, and this last is not soluble in the acid. When such urine is filtered, the clear fluid which results, will, I believe, invariably be found to be rendered turbid by heat, which turbidity, as it is instantly removed by a drop of muriatic or nitric acid, depends upon the presence of a phosphate. This I conceive to be highly characteristic of phosphatic urine: no other form of urine yielding a deposit by standing, is also constantly rendered turbid by heat. As far as I have been able to ascertain, there are only three descriptions of urine capable of yielding a precipitate of earthy phosphate by heat. 1st. Urine depositing phosphate of lime, or the mixed phosphates, by standing. 2d. Urine containing a deposit of the lithates, most commonly, I believe, of the pale kind. And lastly, that form of urine depositing mucus, just described. But it is, however, only in the first variety that I have reason to conclude that such a deposition by mere heat, constantly takes place. Phosphatic urine sometimes contains less urea than healthy urine. Thus 1000 grains of specimen 52 contained only 6·105 grains of urea; the specific gravity of the urine was 1·010: in those cases where the specific gravity is higher, say 1·020, or more, the proportion of urea is found to be larger, but in no case have I found it equal to that of healthy urine of the same specific gravity. Ammonia produces a decided turbidity, or even precipitate, in phosphatic urine; and this, too, even after the fluid has been boiled, and the phosphatic salt thus thrown down, removed by filtration. Corrosive sublimate, alum, and tincture of galls, always produce either a precipitate or manifest turbidity; that produced by the two former being removed by nitric acid, and depending most probably upon the combination of the phosphoric acid contained in the ammoniacal phosphate existing in the urine, with the oxide of mercury on one hand, and the aluminous base on the other. I shall have to notice more fully presently the circumstances under which corrosive sublimate, alum, and tincture of galls, produce precipitate in urine, when I come to speak of albuminous urine. Acetic acid, when added to phosphatic urine which has been kept for some time, frequently produces a brisk effervescence, no doubt from the disengagement of carbonic acid from the carbonate of ammonia. When speaking of those forms of urine which deposit mucus, it was observed, that occasionally heat caused a precipitation of the phosphates, and in several instances. I have been forewarned by this circumstance of the occurrence, at a subsequent period, of a phosphatic deposition by standing; indeed, in individuals who

have been for months accustomed to deposit considerable quantities of the mixed phosphates from their urine, it occasionally happens that such a deposition shall be suspended for some time, the urine yielding only a mucous deposit; unless, indeed, it be kept for a considerable time: in all such cases, however, heat produces a distinct turbidity in the filtered fluid.

[To be continued.]

ON POLYPI OF THE UTERUS.

By D. Henry Walne, Esq.

In the treatment of polypi of the uterus, dispatch in their removal conduces so much to the comfort of the patient, by preventing the disagreeable effects of putrefaction, that whatever can most readily, safely, and easily, cause the complete separation of these tumors, may be justly deemed worthy of attention on the part of surgeons.

In point of dispatch, unquestionably, excision surpasses every means by which the separation of the tumor can be effected; all other means, in fact, resolving themselves into some kind of contrivance for tying the neck of the tumor, and requiring some little time to elapse before the separation can be thereby effected. If this time should exceed two or three days, partial putrefaction of the tumor takes place, and occasions the annoyance of an offensive smell and discharge. To obviate this inconvenience and that of delay, excision has been resorted to, and successfully practised by Dupuytren and others, whose example Mr. Arnott has followed. The general safety of such a course is abundantly established, and its preferable applicability to such cases as present a polypus with a very thick neck, shewn, I think, quite satisfactorily.

In a great majority of cases, however, the neck of the tumor is not of great thickness, and is distinguishable enough from any part of the uterus. The application of a ligature is less formidable to the patient, and as neither operation causes any pain from sensibility of the polypus itself, will, perhaps, with good reason, continue to be preferred, especially if it can be generally made with an avoidance of the inconvenience alluded to above. Now this I have found very practicable in several instances where the neck of the tumor was not of great size, and I believe it will be found so in the average of cases, if, in the choice and use of a ligature, a very simple principle be attended to by the operator. The principle to which I refer, secures also, to a considerable extent, the double advantage of excision and tying,—gradual excision, as by a blunt instrument, which would best prevent hæmorrhage, if danger of that should in any case exist; and tying, with an effect equal to successive tightenings, but without the inconvenience of having to make them.

It is very well known that hempen cords contract in length, and very forcibly, when wetted. Mr. Dalton* employed whip-cord as an hygrometer, and found that between the extremes of atmospheric moisture and dryness a difference of one-sixteenth was occasioned in its length. At sea it has been observed, that cordage braced up tightly in very dry weather has been snapped by the force of its own contraction on the occurrence of rain†. The canulæ of Gooch's instrument were bowed by the force with which the whip-cord contracted in the subjoined case, the noose which had encircled the neck of the polypus being so completely obliterated that a common silver probe could not be passed between the cord and the ends of the canulæ. In the tying of polypi this contractile power is made available simply by using the ligature, of whip-cord, in as dry a state as possible, and by itself, instead of either oiling or waxing it, or moistening, or making it impermeable to moisture, in any way. It should be as dry as possible when used, but capable of becoming moist; and it should not be joined with wire of any sort, as has been proposed‡ in the use of some very flexible ligatures, for the purpose of facilitating their application by giving a little stiffness to the noose, and for the further

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* Meteorological Observations and Essays, p. 31.

† Mr. Boyle "used to suspend a weight of 50 or 100 lbs. to the end of a rope, which was alternately raised and lowered by the moisture and dryness of the air, as a small weight would have been."—Dalton.

‡ Blundell's Lectures "Ley cord, well covered with wax," is also recommended by the same excellent teacher. Most writers and lecturers direct the waxing of the ligature. I do not find any one who has the slightest idea of the principle suggested in my present communication.

purpose of acting as a sort of blunt cutting instrument in the successive tightenings which ligatures require, as ordinarily employed. The stiffness of wire is not wanted in noosing polypi with Gooch's instrument, neither can I fancy its firmness in any case suitable for ligature to be requisite in addition to that of whip-cord. As it becomes moist the whip-cord contracts, and tightens the noose most effectually. More than twenty inches of ligature are so left in the use of Gooch's instrument that their contraction is impressed upon the neck of the tumor, and if the ligature have been drawn as tight as possible in its application, so that the cord is rather forcibly stretched at the time, considerably more than an inch, perhaps more nearly two inches, of shortening will take place, which, in addition to the grip on the neck of the tumor made in the operation, will cause the separation of the polypus, generally in less than three days, sometimes in a much shorter time, of which the following case is but one of several examples. The facts of it are quite fresh in my recollection, the case having occurred in my practice within the last two months.

A lady from Essex called to consult me as to her general health, but more particularly in reference to a florid discharge, from which, latterly, she was seldom entirely free, and which occasionally increased to the extent of a somewhat alarming hæmorrhage. She was 54 years of age, and had been subject to this complaint full four years, in which time more than one practitioner had prescribed for it, and she had taken a variety of internal remedies perseveringly. I learnt that for about two years menstruation had at one time ceased, but it was supposed that her constitution required relief, and nature had accordingly come to its assistance in this unusual way. No investigation of the actual state of the womb had ever been made, but as I represented that to be essential, it was permitted, and a polypus was discovered. It occupied the vagina, its neck extending within the os uteri. An aperient having been premised, I tied the polypus next day with Gooch's instrument, and a ligature of dry whip cord of such a size as would run readily within the canulæ, but not the smallest kind. The ligature was drawn very tight, and fastened securely to the bows of the instrument. In 26 hours the polypus came away. The tumor was of a deep red colour, being full of blood, looking indeed like a firm coagulum, and having no putrid smell. By maceration in cold water for a short time the usual structure of fibrous polypus became quite manifest. At the part which had been encircled by the ligature, a few shreddy broken fibres were all that remained of the neck of the tumor, which appeared to have been of such a size as might have been encircled by something more than an inch of the ligature. On examining the instrument it was found that no noose remained, and that the cord had contracted so forcibly as to bend slightly the silver canulæ.

No unpleasant symptom had arisen in the case, and the lady was sitting up on the Thursday, having been first seen by me on the Monday, the operation performed on the Tuesday evening, and the polypus and instrument having come away on the Wednesday evening. The troublesome and weakening discharge for which she consulted me ceased immediately, and has not, I believe, reappeared. It is not probable that it will recur, as the polypus was very evidently its cause.

Upon this simple principle the polypus is removed so soon that when it comes away it is quite fresh and free from putrefactive odour, and the period of confinement is so short as not to be regarded as a serious inconvenience. It would, indeed, be an imprudence, if, after excision of the tumor had been practised, the patient should sit up, or materially exert herself, within less time. In ordinary cases, therefore, the ligature, applied with attention to these suggestions, appears to me to be an unexceptionable means of removing uterine polypi, since the chief inconvenience attending its employment is thus avoidable, and any others to which it is liable do not exceed, if they equal, those attendant on excision, the only effectual rival operation.

Bloomsbury Square,
July, 1836.

CASE OF

MALFORMATION OF THE THORACIC VISCERA:

CONSISTING OF

IMPERFECT DEVELOPMENT OF RIGHT LUNG, AND TRANSPOSITION OF THE HEART.

To the Editor of the Medical Gazette.

SIR,

IN Dr. Watson's able and interesting paper upon Transposition of the Viscera, a reference is made to some rare cases in which the heart alone has been transplaced to the right side of the body. I inclose herewith an account of a case which fell under my own notice, of transposition of the heart, and imperfect development of the right lung, while the vessels and viscera of the abdomen retained their usual relative situations.

If you think it sufficiently interesting for insertion in your valuable journal, it is much at your service.—I have the honour to remain, sir,

Your very obedient servant,

GEORGE COOPER.

Brentford, 27th June, 1836.

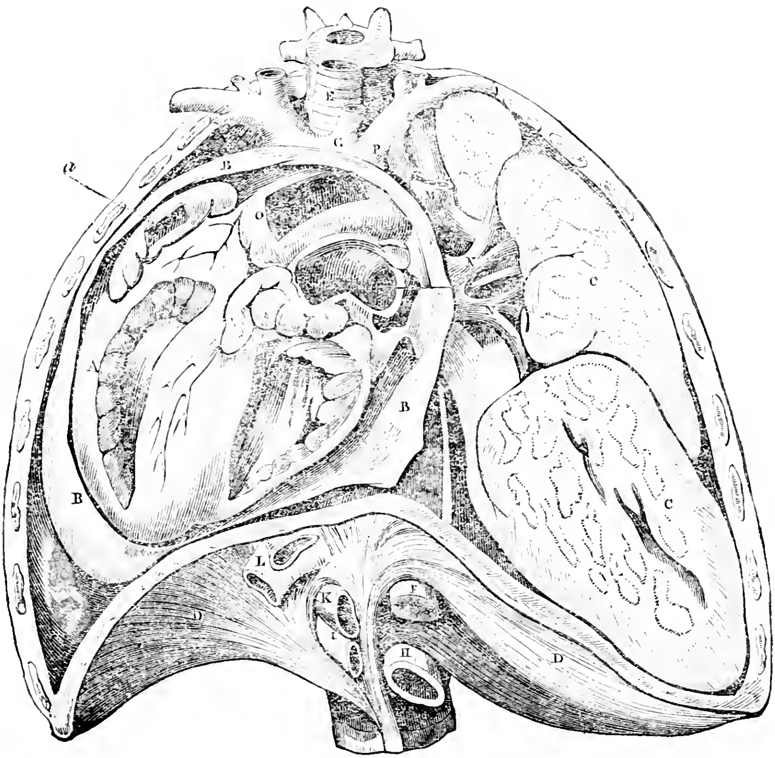

FIG. 1.

A, Heart (*a*, bristle passed through the foramen ovale.)
B, Pericardium.
C, Left lung.
D, Diaphragm.
E, Trachea.
F, Œsophagus.
G, Arch of the aorta.
H, Abdominal aorta.
I, Artery going to right lung (D, fig. 2.)
K, Vein to right lung (E, fig. 2.)
L, Vena cava inferior.
M, ——— superior.
N, Pulmonary veins.
O, Pulmonary artery.
P, Ductus arteriosus, obliterated.

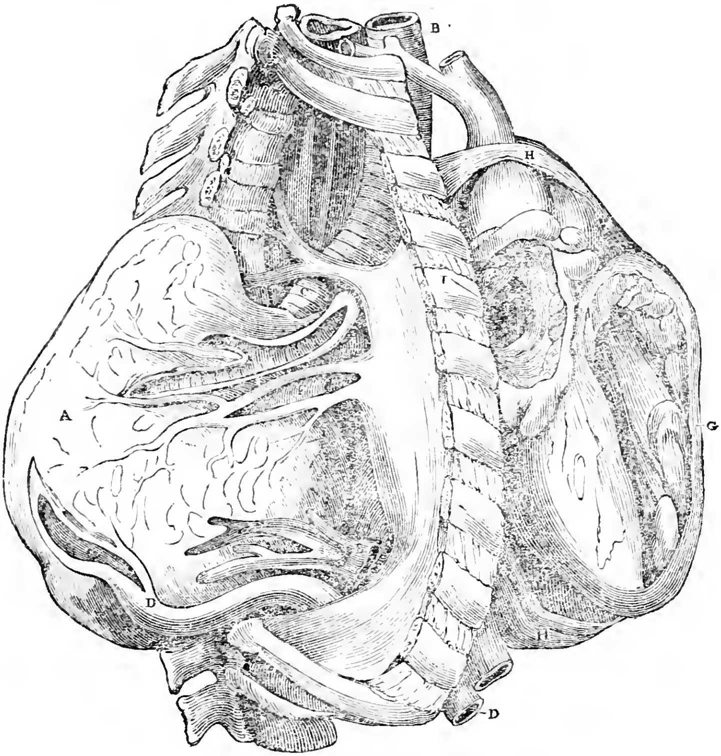

Fig. 2.—*The Right Cavity of the Chest opened by the removal of part of lateral parietes.*

A, Right lung.
B, Trachea.
C, Bronchus terminating in a solid cartilage.
D, Artery from the abdominal aorta distributed to the lung. (There is another smaller vessel from the descending aorta, not seen in this view, given off opposite the sixth dorsal vertebra.)
E, Large vein from the abdomen.
F, Pulmonary vein. No branch from the pulmonary artery.
G, Heart.
H, Pericardium.
I, Foramen ovale, open.

Anne Vaughan was born at the full period, on the 26th of September, 1832, and lived nearly ten months, namely, to the 7th of July, 1833.

Much trouble was experienced upon the birth of this infant to preserve its life; it breathed with great difficulty, it sobbed, was convulsed, was extremely pale, and then quickly became dark, or almost blue; and it was nearly three quarters of an hour before any thing like regular respiration was induced. The whole anterior part of the thorax had a confused pulsating motion, and a throbbing bounding sensation was conveyed to the finger from within the chest. The extremities were cold; the child could not cry, and never did cry aloud to the day of its death, but made a faint moaning noise. The parents were advised not to be sanguine about the life of the child, as I suspected it had some disease of the heart. I supposed, in fact, that the foramen ovale remained extensively open. The child was very delicate, and as there was something so peculiar about the circulation of the infant, I requested the parents to allow me, in case of its dissolution, to inspect the body; more especially as its mother had previously had two seven months' children; one of which died an hour after it was born, and the other was still-born.

On the 7th of July I was called to the child, when I found it in *articulo mortis*. On the 8th, the parents requested that I would inspect the body; which I did, in the presence of its friends, when the following very extraordinary appearances presented themselves.

Upon cutting through the cartilages of the ribs, and turning back the sternum and exposing the contents of the chest, the most singular transposition, or malformation, of the thoracic viscera that I ever witnessed, or heard described, was observed.

The *heart* was of large size, and occupied the *right cavity of the chest;* the aorta arising from it, making a turn from right to left. The whole of the right side of the chest was apparently occupied by the heart; no appearance of lung could be seen on the right of the sternum.

The *left side* of the chest contained a bi-lobed *lung*, the lower lobe being of large size; the upper and smaller lobe, however, had a shallow fissure in its middle.

In the abdomen, one great peculiarity exhibited itself, in the immense size of the *liver*, which was of a dark purple colour, and occupied all the space from the margin of the ribs to the umbilicus, and even extended on the right side to the anterior superior spinous process of the ilium.

All the other abdominal viscera were healthy, and in their natural situations.

This case would open a wide field for physiological remark, both in reference to respiration and the circulation, for I cannot help thinking that this enormous liver must have been assisting in performing a vicarious office for the non-developed lung; but having presented the preparation of the chest to the Museum of King's College, I have no doubt the distinguished Professors of that institution will, in their more minute anatomical examinations of the parts, throw more light upon the subject than could be effected by myself in the ordinary mode of a post-mortem examination.

It may be as well to add, that notwithstanding this malformation, the child had undergone and recovered from an attack of natural small-pox.

MEASLES AND SCARLET FEVER COMPLICATED WITH CROUP.

EFFICACY OF VENESECTION IN YOUNG SUBJECTS.

To the Editor of the Medical Gazette.

Sir,

During the last twelve months the eruptive diseases in all their various forms, have been extremely prevalent in this neighbourhood. Of these, one was a case of mild small pox, after vaccination.

The cases of chicken pox were rare.

Scarlet fever has appeared in all its grades, from the simple redness of the fauces, unattended with cutaneous rash, and the slightest cutaneous blush without sore throat, to the severest and most destructive type of the disease. It has observed no regularity in its time of appearance and mode of attack; first one child in a family would be attacked, and there the disease ended in that locality for the moment; on the following day perhaps the measles would be found next door, and within a week an isolated case of chicken pox would appear in the same situation. In all the cases that proved fatal, and such have been by no means infrequent, the scrofulous diathesis was clearly developed, not only in the children, but in one or both parents. In one house, three children died of the disease within a week, the whole family at once being swept away; in this instance the scrofulous appearance of both parents was particularly observable; and it should be stated that in all the cases (except that of an adult) in which death took place, medical aid was called in late; every old woman here, as elsewhere, believing herself competent to undertake the manageme t of scarlet fever and measles. As a sequel to this disease, acute and subacute glandular swellings have been frequent.

The measles, with few exceptions, has been mild, and the pectoral symptoms slight; but when more severe, readily yielding to leeches, purgation, and salines. The two cases which I now take the liberty of shortly detailing, are one of measles, accompanied, the other of scarlatina, preceded, by all the urgent symptoms of croup.

John H., æt. $3\frac{1}{2}$ years, attacked with measles; very shortly after the appear-

ance of the eruption dyspnœa became urgent, which, continuing for some hours, and increasing, the parents became alarmed, and sought medical assistance. When seen, the dyspnœa was indeed extreme, and the stridulous breathing so loud as to be heard below stairs; rash copious and diffused; pulse full, and quite quick; fever high. Auscultation shewed the inflammatory action to be confined chiefly to the larynx and upper part of the trachea. Venesection in the vena mediana to faintness. Leeches to upper part of sternum, from which the blood continued to flow all night. Calomel, 4tis horis. Next morning symptoms much relieved, but the croupy sound continued in some degree for two days, when it gradually disappeared, and the child recovered.

Geo. W., æt. 6 years, attacked with croupy symptoms, which, continuing to increase, he was visited as a home patient of the dispensary; as he resided close to a brook, it was not doubted that the case was one of idiopathic croup. V. S ad deliquium, leeches, calomel. Next morning V. S. repeated. The symptoms yielded a little, and in the evening a copious eruption appeared, which proved to be scarlatina, after the appearance of which the croupy symptoms subsided, and the fever alone remained.

The only difference that I can perceive between the laryngitic inflammation in the above cases and true croup, is, that in them there was less disposition to the deposition of lymph; the symptoms were those of croup, and the treatment in the first case was regulated by the symptoms, without allowing the presence of the cutaneous affection to interfere in the least. In the second case, as no suspicion existed of the latent disease, the symptoms being those of cynanche trachealis, were met by the usual remedies; nevertheless, the eruption, which proved critical, appeared in the ordinary way, uninterrupted by the active means employed.

In conclusion, I may add that experience proves blood-letting to be as well borne by the youngest subjects as by adults. Those who, fearful of alarming friends, would shrink from opening the mediana, may choose the salvatella, which bleeds well, and is much less formidable. How many cases of bronchitis in children might have been cured, could the prejudice against opening a vein in young subjects have been overcome! The illustrious Sydenham had no such fears, as we learn from the following sentences. "If by using stimulants, and keeping the patient hot, pneumonia had supervened, I have with great success bled even the tenderest infants in the arm, in such quantity as their age and strength indicated. And * * * * have not feared to repeat the operation * * * * and have by bleeding snatched numbers of children from death. For need any one be surprised at my bleeding young children, since as far as I have been able to observe, it may as safely be performed in them as in grown people? And indeed it is so necessary in some diseases of childhood, that there is no curing them without it. For instance, how are children to be relieved otherwise during dentition, in the convulsions happening to them in the ninth or tenth month?"

I have bled in the arm and hand at 12 and 18 months, in acute bronchitis. The following case is given to illustrate the power of blood-letting in that disease, and its superiority over the uncertain effect of leeches.

Thomas Allen, æt. 4 years, fine stout child, light hair, attacked yesterday with bronchitic symptoms and hoarseness; during the night dyspnœa supervened, and continued to increase. To-day, found him lying on his back, unconscious; face tumid; lips livid; respiration rapid and laborious; laryngeal and bronchial sounds loud. Chest convulsively expanded, and as forcibly contracted; extreme spasm of the abdominal muscles; expectorates at intervals of 10 minutes; pulse rapid and irregular. Took two ounces of blood from the mediana, when the pulse fell, and the dyspnœa lessened. In ten minutes the pulse rose, and the symptoms returned; another vein was opened, and 2 oz. more were taken with similar relief. In 15 minutes the symptoms again returned, and the salvatella being opened, an ounce and a half escaped, which produced marked relief; the breathing became easier, the countenance natural; pupils less dilated; consciousness was restored, and he called out for his mother. The bleeding was continued each time till it stopped of itself, and after the opening was closed for a few minutes, it would not bleed again, rendering it necessary to make a fresh puncture. The usual means were

continued, and in a few days he was well, the extreme state of inflammatory action having been reduced at once (if I may so speak) to a mild catarrh.

I am, sir,
Your obedient humble servant,
JOSEPH THOMAS, M.R.C.S.

Wrexham, July 10, 1836.

ACCOUNT

OF

SOME LATE DISCOVERIES OF JOERG

RELATIVE TO

THE LUNGS OF CHILDREN

IMMEDIATELY AFTER BIRTH.

[THE following article is an abstract or abridgment of a very able analysis, from the pen of Dr. Graves, which appears in the *Dublin Journal of Medical Science* for the present month. We cannot afford the requisite space, or we should give it entire. With regard to the work analysed, it is entitled—*Die Fötuslunge in geborenen kinde, für Pathologie, Therapie, und gerichtliche Arzneiwissenschaft, geschildert von* DR. EDW. JOERG, Leipsig, &c. (Sketch of the Fœtal Lungs in New-born Children, with a view to Pathology, Therapeutics, and Forensic Medicine.) It appeared in the course of 1835, being founded on a Dissertation of the author's which was published a few years since. The condition of imperfect dilatation of the lungs, or Atelectasis* (as it has been well denominated by Dr. Jörg), viewed in the light in which it is here presented to us, is calculated to clear up many points which were heretofore considered inexplicable, or were never attempted to be explained, regarding the deaths of new-born infants. More need scarcely be said to engage the attention of medical practitioners and medical jurists to the subject.]

In his first chapter, Dr. Jörg traces the different stages of fœtal nutrition and respiration, and shews how the intensity and vigour of both begin to diminish, immediately before the time arrives for the expulsion of the child from the womb. The vascularity and vital energy of the placenta are thus evidently on the wane; and this organ undergoing a sort of *marasmus*, carries on with decreasing powers the important functions of nutrition and fœtal respiration; at the same time the activity of the amnion declines, and consequently its aid in promoting this object (in whatever way that aid acts) also diminishes. The process of delivery then begins, and uterine pains and contractions follow in their natural order. Now it is highly probable that those pains and contractions exercise a direct influence on the placental circulation, both maternal and fœtal, and thus powerfully tend to interrupt the placental functions; among the rest, that which aerates the blood of the fœtus. Here we see a wise provision of nature; one mode of respiration is repeatedly interrupted previously to its being entirely suspended, so that the child labours at the moment of birth under all the bodily feelings which are coupled with the necessity of breathing, and consequently at the instant when it is exposed to the air, it is impelled by all those feelings, concentrated and acting with the greatest energy, to make a full inspiration. Observe, however, that each preceding uterine contraction, by suspending or diminishing the placental circulation, chiefly in the smaller vessels and the circumference of that organ, has prepared the way for the change which now takes place, by lessening the respiratory effects of the placenta on the blood of the fœtus. That the uterine contractions accompanying the labour pains exert a very important influence in thus compressing the placenta, is anatomically necessary. That these contractions operate through the circulation of the placenta on that of the fœtus, is *à priori* more than probable; this probability, however, is converted into a certainty, by the fact first observed at Berlin, but which Dr. Jörg has not noticed in connexion with this subject, that a notable acceleration of the fœtal pulse takes place immediately before the commencement of each labour pain. Now as the contraction of the uterus commences many seconds, sometimes even half a minute, before the pain is felt, we have an explanation of the manner in which this acceleration of the fœtal pulse preceding the pain is caused, for we can readily understand why the

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* From ἀτελὴς and ἔκτασις, *incomplete extension* or *expansion*. The term Pneumonatelectasis has been suggested as one still more definite and comprehensive.

fœtal heart begins to act with greater rapidity, when the pressure on the placenta produces a certain degree of embarrassment in its circulation, and a consequent difficulty in the transmission of blood from the fœtus to that organ. This subject has not yet been considered in the light in which the preceding observations place it, and is, I think, well worthy of further examination.

From the preceding observations Dr. Jörg concludes, that in estimating the physiological effects of labour and the accompanying pains, we must not restrict ourselves merely to the expulsion of the child, and the restoration of the uterus to a state compatible with the mother's safety, but we must consider the act of parturition as acting powerfully, by means of its duration, and the number and energy of the accompanying uterine contractions, upon the system of the child, so as to prepare it for new efforts necessary for the discharge of the altered functions of respiration. A parturition of the natural duration gradually checks the placental circulation, and limits that of the fœtal chiefly to its own system, while it engenders in the latter a gradually increasing, and finally an urgent want of some new mode of respiration. If the act of parturition be much shorter in duration than is natural, the child incurs the danger of being born in other respects healthy, but not at the moment endowed with the organic stimulus to expand its chest for the purpose of making the first inspiration. The more urgent this stimulus, the more decided and healthful its effects; the more the state of the child approaches to that of asphyxia, suddenly induced in the adult by want of air, as in submersion, the more powerful will be the exertion of the respiratory system of muscles, and the more perfect the dilatation of the lungs by the air at the first inspiration. Once the air, in consequence of this well-performed first inspiration, has penetrated the air-cells in every part of the lungs, the function of respiration proceeds without embarrassment.

When these inspirations have the effect of causing the air to pass into every part of the vesicular texture of the lungs, all is well; but when the first inspirations are imperfect, a portion (often a considerable portion) of the child's lungs remain in their fœtal condition—that is to say, of a brownish colour, and a non-vesicular and consistent liver-like texture; the portions of lung which thus escape the healthful and natural dilatation of their air-cells on the first inspiration, are either gradually dilated by subsequent efforts, or else nature, failing in the attempt to dilate them in the usual way, tries to get rid of these parts now acting like useless and foreign bodies, and sets up an inflammatory process, often ending in interstitial suppuration, or in vomicæ; not unfrequently the inflammation gives rise to a complete consolidation of the *atelektasic* parts, which may, when small, be confounded with tubercles, or with minute and insulated hepatizations.

It is obvious that every cause which much weakens the vital powers of the child before its actual birth, may occasion the occurrence of *atelektasis.* Thus may act long-continued over-violent pressure on the head, hæmorrhage from the navel, &c.

Indeed, all the causes commonly enumerated as producing asphyxia in newly born infants, may, when they are present only in a slight degree, occasion atelektasis. After very easy and rapid, and, as they are termed, very lucky deliveries, the child is often observed to be large, of a healthy appearance and form, but nevertheless very weak and unexcitable, although without any of the symptoms of asphyxia; its extremities hang flaccid and powerless; the voice is weak and whimpering; the respiration proceeds as it were in a deficient superficial manner, and the respiratory motions of the chest, particularly those of its anterior portions, are evidently limited in extent; the eyes remain dull and half open. When such infants are placed in a warm bath, and other stimulating remedies are applied in the usual manner, the debility seems somewhat diminished; the limbs are moved about a little; the eyes more opened; but still the respiration continues deficient and superficial, consisting of a short panting breathing, like that of persons affected with asthma, or with hydrothorax: children, on the contrary, which are born after a very difficult labour, generally exhibit a swollen state of the head, and though they too are often very weak, yet they can be easily distinguished from the former by several characteristic symptoms, such as a red or even bluish tinge of skin, bearing marks of violent compression, and often appearing

bruised. Such infants often come into the world asphyxiated, and always very weak and exanimated. In many cases, indeed, they appear already dead, and do not begin to move the lips and chest even feebly for a quarter of an hour or longer after birth; the breathing, at first weak and suppressed, gradually improves in some few, until it reaches a degree of development compatible with the support of life.

When the affection runs an unfavourable course (being caused by some injury to the brain or spinal marrow), after the first paroxysm of convulsions, the debility and listlessness are greatly augmented, the voice remains husky, and a rhonchus in the chest continues, while something like coughing is occasionally heard. Dr. Jörg says, that the debility in these children is too great, and the respiration too imperfect, to enable them to cough out, as it is called. During the remission, the infant lies with half-open eyes, and enjoys no true sleep, and slight convulsive twitches play about its mouth and upper extremities. In twelve or fourteen hours a new paroxysm comes on, of longer duration than the former, and in which it is bereaved of all power of sucking or swallowing, while the skin becomes cold and pale. This paleness, however, often alternates, in the latter accessions, with a livid tinge of the skin over the whole body, while the accumulation of phlegm in the air-passages threatens impending suffocation. The eyes are so turned out of their natural direction, that scarcely a segment of their cornea can be seen; the hands are clenched, the toes bent, and all the extremities drawn towards the trunk. The alvine evacuations are very confined, or cease altogether. The attendants are often inclined to think that the child has actually died in one of these fits of convulsions, either of apoplexy or suffocation, for it ceases to breathe for half a minute, or even much longer, and grows so livid and cold meanwhile, as really to assume the appearance of being lifeless; after a time, nevertheless, the respiratory motions are again observable, and the pectoral rhonchus is heard louder than before, while every now and then the child draws a deep sigh-like breath. The respirations, indeed, succeed each other at long intervals at first, and are performed so unnaturally, and with such violent spasmodic efforts, that they resemble a snapping or catching at the air. It seems altogether impossible for the little sufferer to live or become better, so long are the pauses between the inspirations, so livid is the body, and so disturbed the features and eyes. The breathing, notwithstanding, becomes by degrees more continuous, the lividity of the skin diminishes, the heat returns, the eyes are less distorted, and in fine the symptoms all become mitigated; thus proclaiming the approach of another remission. This remission, however, is attended with a more alarming degree of debility and sinking than the former, and with a much less perfect subsidence of the convulsive motions, which, indeed, continue with more or less violence, while the child, unable to suck or swallow, is evidently oppressed with dyspnœa, accompanied by a peculiar attempt at coughing and a continued rhonchus. The collapse and emaciation are so great, that, combined with the extreme pallor and a glazed eye, they impart to the poor infant's countenance the expression of old age.

It seems now impossible for the child to survive another paroxysm; and yet it often does; and it may even survive more than one, nay, several.

After a shorter remission than before, the third fit commences with the same symptoms, except that the extreme debility of the child renders the convulsive motions less energetic. Instead of the clonic spasms, tonic are now frequently observed, and the child, at the same time that it becomes generally livid, stretches itself out, bent backwards, in a fit of general trismus; the limbs stiff, the fingers drawn inwards, the mouth shut, and the eyes distorted. After from half an hour to one or several hours have been passed, with little rest, in this agonizing state of spasmodic suffering, again a remission takes place, but it is of still shorter duration than the preceding: and thus the child at last either sinks exhausted, or dies in a fit of convulsions.

Dr. Jörg is of opinion, that when the disease does not end in perfect recovery or in death, it may give rise to various chronic lesions. Thus all the portions of the lung occupied by the *atelektasis* may become consolidated, so as to lose all traces of their natural vesicular structure, and so they may remain useless, but not injurious, the functions of respiration being sufficiently performed by

the rest of the organ; when, however, the atelektasis is very extensive, Dr. Jörg thinks that a chronic *morbus cæruleus* or *cyanosis* may be the consequence, and I may observe that the *foramen ovale* must remain open, for the most potent force which operates in diverting the current of blood into another channel, now acts but imperfectly, and consequently blood in proportion to that deficiency must still flow through the *foramen ovale.* In fact I am persuaded that in some cases of *morbus cæruleus* attributed to an open foramen ovale, or ductus arteriosus, the true cause resides in the lungs, whose capillaries refuse to draw the usual quantity of blood to an organ, but imperfectly qualified for its aeration, and through the capillaries of which organ it cannot be transmitted unless it be aerated, as is well proved by the experiments of Alison and others. In such cases nature perceives at once the necessity of still, to a certain extent, keeping open the former passages for the blood.

It is evident, that in many cases the portions of lung occupied by atelektasis may run into acute or chronic pneumonia, and in some persons in whom these diseases do not prove fatal, the foundation of a delicacy of lungs, dyspnœa, and shortness of breath, must be laid, which may continue for life. In other cases, a constant fever and bronchitis are the consequence of atelektasis, but Dr. Jörg confesses, that all the pathological relations of atelektasis require a still more extensive and diligent examination of the subject.

Treatment.—Much care must be taken to prevent, if possible, the disease from being formed, and the physician must therefore attend especially to the prophylactic treatment. In the first place, we must endeavour to prevent a too speedy delivery, when circumstances give us reason to expect that the process of parturition may prove unusually short. This is to be done by advising the patient to lie as quiet as possible, and to abstain from exerting herself over-strenuously in straining to assist the pains; the aid of mechanical pressure to the abdomen must be likewise avoided, and we must give nothing stimulating internally. In former times, the act of parturition was only regarded as a simple expulsion of its contents by the uterus, and it was thought that the sooner it was accomplished the better; now, however, our views are altered, and we consider this process not merely not merely as one of simple expulsion, but as intimately connected (according to the manner in which it is performed) with the health of the child as well as of the mother.

Every thing that tends to produce unnatural pressure on the head or spinal column must be avoided, and we must be very careful in stopping hæmorrhage from the cord, as any impression of an injurious nature on the nervous or vascular system is peculiarly liable to render the first inspiration imperfect. We must also very carefully remove any accidental obstructions in the mouth or nasal passages, owing to the pressure of mucus, blood, liquor amnii, or meconium.

When the infant comes into the world exceedingly weak, or when we have reason to suspect the previous application of some degree of violence to the head or spine, we must endeavour to resuscitate it with caution, and in the following manner: In the first place it must be immediately put in a warm bath at 95°, if we cannot succeed in reviving it before the navel-string is divided, which, however, should always be attempted: the child being in the bath, and every thing which obstructs the passage of air through the mouth or nose removed, we must rub the soles, palms, and whole length of the spine, diligently with a soft flesh-brush, and we may apply friction either with the hand or a brush to the chest. A little sulphuric ether may be sprinkled on the belly, chest, and back, and may be also cautiously placed in contact with the inside of the mouth and nostrils; the fauces and internal nares may be next irritated with a feather, and, even when the case seems obstinate, we attempt awakening the respiratory energy by introducing some sternutatory powder into the nose. Some recommend us to blow into the nostrils air loaded with stimulating and strong odour, and for this purpose some recommend the practitioner to chew a little garlic; in the meantime cold water may be occasionally dashed with the hand on the abdomen and thorax, and simple water lavements may be used, or else both the water of the bath and that used for the lavements may be quickened by the addition of a little vinegar. If we succeed in thus arousing the slumbering

powers of life, we must immediately make a pause in the application of our remedies, in order to avoid the risk of over-stimulation. In general it will be necessary to resume these remedies in the course of a few minutes, and thus we proceed pausing now and then, but all the while having the pleasure of witnessing the uninterrupted resuscitation of the infant. During this period care must be taken to maintain the bath at a proper temperature, by adding hot water from time to time.

Where some injurious impression has been made upon the nervous centres during delivery, it is useless to attempt artificially inflating the lungs; for the want of vital energy in the respiratory apparatus, produced by the nervous lesion, prevents these organs from performing their proper office, and consequently, although the pulmonary tissue may be artificially distended with air, no permanent benefit is obtained; nay, artificial inflation, particularly when pushed too far, may in such cases prove dangerous or even fatal. Dr. Jörg seems to be of opinion, that certain injuries of the nervous system received during delivery, may so impair the nervous energy of the parenchymatous substance of the lungs, that healthy dilatation of the pulmonary tissue, and healthy breathing, are effectually prevented, even although the whole muscular system connected with respiration may make the most violent efforts to carry on this function. This is a very important view, and should not lightly be rejected, supported as it is by a striking case and dissection; indeed, I have long been of opinion with Dr. Townsend and others, that the respiratory motions of the extreme bronchial tubes are not merely passive and confined; on the contrary, there is reason to believe that they are active and extensive, and of great importance in the healthy discharge of this function; in fact, in some diseases, from the beginning, and in almost all towards their fatal termination, asphyxia seems induced not by a deficiency in the motor powers destined to act on the diaphragm, and other respiratory muscles, but by a failure of the nervous energy, which presides over the respiratory motions of the great system of minute air passages. In other words, I believe in the existence of *paralysis of the lungs* themselves.

Our endeavours to resuscitate the infant must be often continued several hours, (during which the child is constantly kept in the warm bath,) before we can hope that the flame of life burns permanently. If the child begins to open the eyes, to move the limbs and lips, if it breathes repeatedly, and even makes attempts at crying, we must immediately dry it, and wrapping it in warm clothing, hand it to the mother, in hopes of its being still further revived by the maternal warmth, or when it can suck, by the natural nourishment.

If notwithstanding our efforts we cannot bring about the production of deep and strong respiration, and if during the continuance of the asphyxia, a pulmonary affection has been developed, the further mode of treating such cases, must, although their causes are so very different, be precisely the same with that which is proper in infants where the evil depends upon a too speedy delivery, a premature confinement, and consequently unripe condition of the child, an exhausting hæmorrhage, or some mechanical obstruction to respiration; when any one of these causes has produced the state of debility and imperfect respiration immediately after birth, so often referred to, then we must at once employ with the greatest diligence the means best adapted to remove asphyxia, and excite the respiratory organs to increased action. In such cases, benefit is derived from the cold dash applied cautiously to the chest and spine, and from dropping æther on these parts, for if by those means the thoracic muscles are stimulated, they immediately contribute towards the enlargement of the chest, and the lungs now more distended with air, are themselves sympathetically excited to increased exertions, assisted by the application of similar stimuli to the stomach and belly, whereby the action of the diaphragm is increased. By means of warm baths mixed with vinegar, while we stimulate the skin, we endeavour to act through the mucous surface with lavements, and the nostrils and the palate with æther, which has, when so applied, a powerful effect on the larynx and air passages. Immediately after birth, on perceiving that the infant's respiration is imperfect, its lungs should be fully inflated—a precaution of the greatest value, as tending at once to bring into operation those portions of the pulmonary tissue which

must otherwise become permanently affected with atelektasis. In this operation, however, much attention and skill are required, for if artificial inflation be performed at the moment expiration would have taken place, the respiratory rhythm is violently deranged, and much risk and danger may ensue.

Although this plan of treatment may in many prove effectual in preventing permanent atelektasis of any portion of the lungs, yet in violent cases such success is not always attainable, and we may know that we have failed, by observing the symptoms of superficial and difficult respiration, continued and accompanied too, in the sequel, by signs of derangement in the circulation. This is the moment for attentive observation and for active exertion, for we must be prompt to mark and to meet the symptoms occasioned by the unsubdued atelektasis; to succeed, not merely energy, but the greatest watchfulness and care, are requisite. A new set of measures must be now called into requisition; these measures are to commence the moment those already tried in the bath have failed; emetics are here our sheet anchor, in consequence of the powerful influence they produce on the respiratory and circulating functions: emetics seem in such cases to rouse the lungs to increased action, and tend to promote expectoration, an important matter when pulmonary congestion is to be relieved. After the action of the emetic has ceased, Dr. Jörg recommends minute doses of calomel repeated several times in the day, according to its effects upon the bowels and on the disease. The warm bath must be repeatedly used, particularly during the convulsive paroxysms: when the convulsions are violent, a sinapism one inch broad should be placed over the spine at the nape of the neck, and between the shoulders. It is almost unnecessary to observe that all the means hitherto recommended prove useless, unless unremitting attention is paid to maintain the infant at a proper temperature, and unless the most judicious modes of nourishing its system are resorted to. When all these efforts have procured a remission of the symptoms, we must endeavour to improve the advantage gained, by a continuance of the same means, except the sinapisms, which may be omitted; and we must persevere until all traces of the disease have vanished. The frequency of the doses of calomel and of the warm baths may be diminished in the same proportion; when, on the contrary, the means above recommended procure no immediate, or but temporary alleviation, they must be continued with greater diligence than before, the doses of calomel and the baths being used more frequently—the former every third hour, the latter three or four times daily; when convulsions are threatened, the sinapisms to the nape must be repeated. When symptoms of suffocative catarrh make their appearance without any evident cerebral complication, they must be met by an emetic, which sometimes averts the more immediate danger, thus giving time for the other remedies, such as the calomel and baths, to produce the desired effect, by restoring the balance of the circulation, and removing the obstruction in the chest. In order still further to promote the cure of the bronchitis, or of the pneumonia when present, Dr. Jörg advises sinapisms to the chest and neck, and in violent cases the application of a single leech.

It is not necessary to detail the observations, however valuable, which Dr. Jörg makes upon the treatment of various symptoms connected with atelektasis, inasmuch as they would suggest themselves to every judicious practitioner; I shall therefore conclude this part of my subject with remarking, that his twelfth chapter, on the connexion of atelektasis with medico-legal investigations, concerning newly-born infants found dead under suspicious circumstances, contains much novel and interesting matter.

HYOSCYAMUS AND ITS PREPARATIONS.

To the Editor of the Medical Gazette.

SIR,

IN your last number I perused a note from Mr. Joseph Houlton, purporting to correct what he has chosen to designate a mistake of mine, in my translation of a New Formulary of Hospitals, a work which has given great annoyance to more than one translator of foreign formularies.

My allusion to Mr. Houlton was as follows: — "Mr. Houlton has made many improvements with this medicine (hyoscyamus), and is of opinion that the London College of Physicians has erred in advising the plant to be collected annually; it should be biennially*." To this allusion Mr. Houlton now replies, "I am not aware that I ever entertained an opinion that the College had erred respecting henbane. I know of no plant more erroneously managed by chemists and apothecaries than henbane: the fault does not rest with the College†."

In the paper read before the Medico-Botanical Society, and first published in the London Medical and Surgical Journal for January, 1831, and not in the Medical Gazette until a subsequent period, when it was copied and acknowledged, Mr. Houlton employed these words:—"When I had the honour to bring this plant before this scientific Society during the last session, I mentioned some facts which I considered important, and which I now beg leave to recapitulate, because they are not all, as far as my experience goes, to be found in books. Contrary to what is stated in most modern works on botany, and on materia medica, hyoscyamus niger, I assert, is a biennial plant, and is in a fit state for medical purposes in the second year only of its duration, when in flower, according to the excellent general rule of the Royal College of Physicians, 'postquam flores expassi fuerint; et antequam semina maturescant.'"

Now every medical practitioner knows that the respective Colleges of Physicians are the only authorities as to compounding and preparing medicines, and that their Pharmacopœiæ are the only works of reference on the materia medica. The Colleges are likewise the only authorities empowered by law to frame Pharmacopœiæ, which all must follow, and they alone are responsible for all errors and defects in the preparation of hyoscyamus, or any other plant or medicine. If their directions are correct there is no need for the important discovery of Mr. Houlton; and though he did not openly mention the London College, the inference was and is clear that he meant it, as the London Pharmacopœia alone is the guide for chemists and apothecaries in England and Wales. It is notorious to the whole profession, both at home and abroad, that the London Pharmacopœia is far behind the present state of science, is unworthy of the country, and does not contain a single new medicine introduced since 1824. Mr. Houlton may consider it excellent, and compliment its framers; while the large circulation of more perfect works of the same kind, clearly demonstrates the opposite feeling of the medical practitioners.

It is also remarkable, that Mr. Houlton himself translated an edition of M. Magendie's Formulary of New Medicines, which was a useless undertaking if the London Pharmacopœia was so excellent. He ought not, I presume, to feel a great deal of annoyance that the Practical Formulary of Hospitals was subsequently translated by myself, when the profession has required a second edition of it in a few months. I regret that the new impression is just printed, or I should have had much pleasure in doing Mr. Houlton every justice, which I shall endeavour to do hereafter, by placing his former and late opinions in juxta-position.—I am, sir,

Your obedient servant,

M. Ryan, M.D.

Great Queen-Street,
St. James's Park, Westminster Abbey,
July 7, 1836.

* New Practical Formulary of Hospitals, page 440.

† Medical Gazette, July 2.

OBSERVATIONS RESPECTING LITHOTRIPSY;

WITH A CASE.

In Answer to Sir C. Bell's late Remarks.

By Baron Heurteloup.

To the Editor of the Medical Gazette.

Sir,

I regret to take up any part of the space of your valuable journal, destined as it is to spread useful knowledge. A person whom I never offended—never even have spoken to—has succeeded in venting in your pages, first, in a lecture, and last week in a letter addressed

to you, inexplicable feelings, which urge him on to the breach of professional decorum. I have the honour of forwarding to you the document, and the answer demanded from me by the letter you have published. I am sure, sir, after this, the well-known spirit of justice of your journal will prevent your again opening your pages to such personal attacks as Sir C. Bell has conveyed on these two occasions. The misstatements of the lecture called up two of the first surgeons of the land to confute it—the letter, still more unjustifiable, the accompanying observations and case will fully expose.

I remain, sir,
Your obedient servant,
BARON HEURTELOUP.

4, Queen Ann Street, Cavendish Square,
12th July, 1836.

I did not answer the first unprovoked attack of Sir C. Bell, for which he thought it safer to apologise by a note, acknowledging how honourable to me were the facts contained in its refutation, written by Sir B. Brodie and Mr. White;—I did not answer, I repeat, this letter, because, of all things, I abhor most medical squabbling; because, also, by doing so, I should only have indulged Sir C. Bell. Besides, were I to reply to every attack made upon me, I might acquire that infirmity which renders men a pest to medical society, and, by repeated indulgence, makes them quarrel with every institution and every colleague they are yoked to in practice, from the beginning to the end of their career. I am sorry, sir, that the love of notoriety should have induced a person in no wise concerned in, or conversant with the cases, to send over to this country the document which has served as a pretext for traducing me once more, and left me no loop-hole by which to retreat, and avoid answering a personal attack, from which all men of honour shrink, when carried on in words, in print, and in public. My own defence shall be confined to a statement of facts; but I cannot pass over in silence what Sir C. Bell allowed himself to say relatively to a gentleman who lately held the highest office in the surgical profession (and who will always hold the highest place in the world's esteem) merely because, with the true English feeling which animates generally every man in the country, he called for fair play. What a contrast betwixt Mr. White, who befriended a foreigner and his discovery, at his first arrival in a strange land — with no other motive than his good feelings, and the promotion of art—and Sir Charles Bell, who, without provocation, attacks that same foreigner by statements of which he has or has not ascertained the untruth, applying to him at the same time vulgar epithets, &c. (*vide* Lecture in MEDICAL GAZETTE.) The chivalry of my true-hearted friend is not that which is worn at the button hole—and the innuendo launched at him, recoils as innocuously as a poisoned dart from a coat of mail.

Sir Charles Bell reproaches me with not publishing my cases: I need not observe that every medical man is allowed to use his own discretion on this point. But mark the difference of my situation; all my patients are brought to me by my medical brethren; the cases are theirs—with them I attend the patients. There is always one or two, and most frequently twice that number of medical men present at every operation I perform—and, on all occasions, where the position of the patient allows of it, I display my instruments to a numerous assembly, make any demonstration, answer any query that may be desired by the by-standers. This I do to spread the knowledge of the art, setting aside my own personal interest in its concealment. If any medical man should require information as to any particular case, let him apply to the surgeons of the many hospitals in town and in the country, where I have operated before hundreds: let him apply to the surgeons whose patients the persons operated on are—let him apply to those of my medical brethren who have been themselves operated on and cured, and are daily to be met with. If he questions the character of lithotripsy itself, and of him who practises it here, let him inquire why the most eminent medical men of this country are daily bringing me more and more patients.

With the permission of my medical brethren, I will publish all our cases. Such has always been my intention: but the interests of science require that I should first co-ordinate and class them, and be able to point out the relation which each case bears to each line of

improvement made in the construction of the instrument, which has almost entirely done away with the necessity of having recourse to my former inventions.

Lithotripsy, which is born of yesterday, will, we hope, shortly cease to be in that state of transition which explains the existence of the different modifications of numberless instruments alluded to by Sir C. Bell as being found every where, but with which, however, hundreds have been cured, and which do but keep company with the interminable number of instruments for lithotomy, for ages equally used and equally successful—equally lauded, and equally condemned.

As to the case on which Sir C. Bell grounds his new "incartade," and which he reproaches me with not publishing, would it be believed, that at the time Sir Charles wrote, the case was still under treatment; and this he well knew? Would it be believed that I was urged to do a thing so unsatisfactory, and at the same time so indelicate and unprofessional, as to publish the details whilst the patient was still in hand? I should not now do so; but considering it my duty, after Sir C. Bell's letter, I applied to Mr. Copeland for his sanction: this I received; and he kindly added, that he considered the case so much the more satisfactory, and conceived from it a higher opinion of lithotripsy, owing to the difficulties which were overcome. Sir Charles's philanthropy will, no doubt, be much relieved on hearing that the patient is doing so well, as proved by the following note received from Mr. Copeland, at the moment I was penning the above words:—

"My dear Baron,—I find I am engaged at 2 on Friday: would it suit you to meet me at 3 instead of 2.

"Our patient is so well, that I trust there is little left to do.

"Very truly yours,

"T. COPELAND.

"Golden Square,
July 11, 1836."

*Case of * * *, Esq.*

The patient had in his bladder a calculus of about thirty or forty lines in circumference: he was naturally very sensitive, and I was induced, partly in compliance with what he very naturally desired, and partly to render the operation as gentle as possible, to employ a *percuteur* of small diameter. The calculus was composed of alternate layers of lithic acid and mixed phosphate, and yielded to the action of the instrument, as did also a considerable number of fragments: the patient voided these. One piece, however, was taken up which resisted the power of the instrument. The sound which was conveyed on hammering it resembled that which would result if the action took place upon metal. It then struck me that the "percuteur" was coping with the nucleus of the stone, which I conceived was of oxalate of lime. Fearing that the instrument, from its small size, might not pulverize this calculus, which had already given such undoubted proof of hardness and tenacity, I immediately resolved to leave it in the bladder, in order to provide myself with more energetic means, and effect its comminution at the next operation. In this Mr. Copeland perfectly concurred; but I found, on wishing to loose the calculus, that it was firmly retained in the instrument, being imbedded in the plastic detritus resulting from the phosphates which the first blows of the hammer had acted upon. On weighing all circumstances with Mr. Copeland, we were of opinion that the most advisable plan would be to perform the operation recommended, and so frequently performed, under other circumstances, by Sir Astley Cooper and Sir B. Brodie.

The "percuteur," (as perfect and entire as when introduced) was easily withdrawn into the urethra; a small incision, or "boutonnière," was made, by which the calculus was removed from the instrument, which was afterwards withdrawn as usual. This stone proved to be excessively hard, and composed of oxalate of lime, as had been anticipated; and about twelve lines in circumference. The patient was put to bed after the operation, and in eight or ten days the small incision was healed up. The treatment for removing the calculus that remained was then continued, and, as is seen by the note above, the result is very far from being unsatisfactory.

The accuracy of these statements, or any further particulars, might, I dare say, be obtained from the goodness of Mr. Copeland.

There are other allegations, conveyed

in mellifluous language, in Sir Charles Bell's letter, which, however, would only prolong my unpleasant task were I to notice them. Considering the zeal he expresses for lithotripsy, I trust that after this statement he will not tell pupils whose pursuit is the relief of mankind, that the "percuteur," by which so many have been cured (twenty patients publicly by me in the great hospitals, and six in a lesser institution), "is a most villanous and dangerous instrument; and if you have been tempted to buy it, keep it till you grow rich, and give it to your butler to draw corks from a bottle." (*Vide* Sir C. Bell's lecture, MEDICAL GAZETTE of 19th March, 1836, page 999.)

I would ask, sir, whether Sir Charles, in thus addressing his pupils, could have had the conscientious intention of acquainting them with the honest truth? Probably, among those who were listening to him many were acquainted with things as they were; and what must have been their opinion of one who had not only to instruct them, but also to set them an example of medical probity?

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

A Natural System of Botany; or a Systematic View of the Organization, Natural Affinities, and Geographical Distribution, of the whole Vegetable Kingdom; together with the Uses of the most important species in Medicine, the Arts, and Rural or Domestic Economy. By JOHN LINDLEY, Ph. D., &c. &c. 1 vol. 8vo. 2d edition, 1836.

WE take some blame to ourselves for not earlier noticing this valuable work. The previous edition, which had been six years before the public, had made known the principles upon which it was founded, and the manner in which these were worked out; but so greatly has it been improved in the present edition, that it almost deserves to be called a new work. It is a necessary adjunct to the second edition of Dr. Lindley's Introduction to Botany; and when from it the student has learnt the structure and physiology of plants, he may turn to this volume with great advantage to learn the arrangement of plants in natural groups, and all the benefits which flow from this method of classifying plants. Indeed, if he have any desire to prosecute the study of the vegetable kingdom in a proper manner, he has no choice as to which work he shall use, after the mere elementary works of the lecture-room. Not only does no similar work exist in the English language, but nothing of the same kind is to be found in any language we are acquainted with; for, in addition to what was contained in the former edition, the present volume contains a complete list of the genera of every natural order, which makes it an index to the whole vegetable kingdom—an office which no other work but Bartling's Ordines Naturales Plantarum was calculated to serve. At the end there is introduced the characters, at full length, of many recently established or but little known genera; a circumstance which greatly enhances its value.

The only point where we feel warranted in recommending alteration is in the sections which treat of "Properties." Here the same disorder reigns as existed in the former edition. It will not now serve as an excuse to say that the same careless arrangement is to be found in Decandolle's "Essai sur les Propriétés Médicales des Plantes," on which this part of Dr. Lindley's book is founded, since Dierbach's "Abhandlung über die Arzneikräfte der Planzen, verglichen mit ihrer Structur und ihren chemischen Bestandtheilen" presents a perfect specimen of correct arrangement of the different genera and species under distinct heads, according to their different manifestations and degrees of power.

Now as Dierbach's publication appeared in 1831, Dr. Lindley either must be, or ought to have been, acquainted with it. We have only to add, that if the plan followed in that work be adopted in a new edition, which we earnestly hope will soon be required, of the work before us, it shall then receive, as it will deserve, our unqualified approbation.

MEDICAL GAZETTE.

Saturday, July 16, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

SCIENTIFIC REUNIONS IN THE PROVINCES.

As the time approaches for the annual assembling of our great scientific and professional associations, we can well imagine the ardour with which its actual arrival is generally anticipated. One parliament is about to close its sittings,—a parliament, by the way, from which much has been all along expected, with what issue we need not stop to notice,—and another, of a very different kind, comes to occupy its place in the attention of the professional public. We have now, indeed, our scientific, as well as our political, congress, yearly; and if the one disappoint us, we have our refuge and consolation in the other. What a change has a few years wrought in thé nature of the footing which science holds in this country! It used to be wooed and won in secret—its votaries pursued it, each with his own separate suit and object: it is now made a common cause, and is sought to be attained by none exclusively. The meeting of the Association at Bristol, next month, is looked forward to by many, with varied and mingled feelings; for some, and we believe no small number, it will have all the attraction of novelty; they have heard of the intellectual banquettings and feasts of reason which rendered former reunions so delightful, and are anxious to participate in those about to take place: while others long to renew those pleasurable feelings already experienced, and to greet once more the friends whose society they enjoyed even for no more than one short week, in the last and perhaps the preceding autumns.

But to our professional brethren a speedier as well as more special treat is offered. The meeting at Manchester is at hand,—will be *over* before another of our numbers issues from the press. To us, who keep eternal watch and ward in the great city, there is a pleasure even in contemplating the pure enjoyments of such reunions: the one at Manchester must have peculiar charms. Last year, at Oxford—*inter sylvas Academi*—we can fancy how truly gratified must each visitor have been, both with the reception offered to himself, and the honours done to the profession of which he was a member: the learned retreat and calmness of the scene, disturbed only by the bustle of the eager visitants, must have thrown a complexion over the whole calculated to impress the mind permanently and strongly. Manchester in this respect will afford a contrast: the lovers of life in its least sombre and gloomy aspect, may there recreate in the full tide of enjoyment. In our mind's eye we can see the practitioner who has stolen a day or two from the busy sameness of his habitual occupation, hurrying about, and scrutinizing with eager glance the arrangements of those factories which contribute so largely to our national wealth; we can follow him to the museums, institutions, and infirmaries, which adorn the great capital of the provinces; and we can then behold him sitting in conclave with his brethren, holding council on matters of present and future emergency, and, perhaps, pouring out the rich stores of his accumulated experience to illustrate points brought under the general consideration. And this is what many members of our profession are obliged to consider as—relaxation!

Independently of the local attractions of Manchester, we believe that the meeting about to be held at that place will be possessed of more than ordinary interest. Subjects of deep importance affecting the well-being and the very character of the profession will, we understand, be discussed there. No progress, for example, has been made towards effectually repelling the rude encroachments of the Poor-Law functionaries, who, with a spirit of unprovoked hostility, have thrown down the gauntlet, and almost proclaimed open war with medical men throughout the country. This imperatively calls for the undivided attention of the profession in their annual congress assembled. No where else can the several bearings of the question be brought so prominently forward; nor do we think, if the opportunity of making at once a strong appeal to parliament on the subject be now lost, that it can again easily be retrieved. But there are *reports* forthcoming which no doubt will serve to set the matter in a strong light; while the proper steps to be taken will be clearly pointed out by those who have devoted the best energies of their minds to the consideration of what is best to be done.

One topic of special importance coming before the meeting at Manchester, possesses for us more than ordinary interest. We allude to the settlement of the question relative to the future position of the society lately instituted in the eastern counties. Are we to have both an eastern and a western Association henceforth,—for the recognition of the one necessarily reduces the pretensions of the other? or are we, as it was originally proposed, and as the plan has hitherto been successfully carried out, to have *one* great Association for practitioners throughout the provinces generally? If the former be determined on, we see not why the medical men of the south and the north should not also have their distinct Associations, for they are much farther asunder than those of the east and west. We confess that to our minds this splitting into separate Associations has too much the air of a dividing of interests, which can scarcely fail to do mischief to the whole. We are aware that the originators of the eastern society profess not to disunite themselves from the general body: they speak of a sort of necessity which has induced them to pursue the course they have adopted: and their chief argument seems to be the convenience of the proceeding. They offer terms on which they are willing to enter into a league with the parent Establishment, intimating of course, that if these be not complied with, they will henceforth occupy an independent position: *they* will be the Eastern Medical Association, while the original Society must merge, in their nomenclature, with the plain style and title of the western.

We have already, on a recent occasion, offered a few remarks on this subject, and we are glad to find that we are not singular in the view we took of it. A document which we subjoin has been forwarded to us—one which we hope will have due weight at the approaching meeting. From it we gather the several propositions—some of them curious enough—tendered by the managers of the Eastern Association to the parent society, but must say that they have impressed us, on the whole, with any thing rather than a sense of their propriety or justice. It is unnecessary for us to enter into detail: the reasons stated by the Bath Council will be found full, straightforward, and satisfactory, on the several heads submitted to their consideration.

Once more we must deprecate any disunion—any needless separation, of

the members of *the* Provincial Association, for the purpose, expressed or understood, of forming separate societies; for such a proceeding is certainly not that spreading into branches which is consistent with strength; it is rather a luxuriating in the youthful prosperity of the original stock, which can only cause weakness if unrestrained. At least it is, as we think, premature for some time to come, to allow the vigour of the trunk to be expended in the support of collateral appendages—branches which, however ornamental in their aspect, can in no wise contribute to the real benefit of the tree from which they have their being. But we speak with deference and some reserve on the subject; we shall be most happy to hear of a speedy and satisfactory adjustment of the question.

The members of the Council of the Provincial Medical and Surgical Association, residing in Bath, having met on the 20th of June, 1836, to take into consideration the proposed junction of the Eastern Association; and again, by adjournment, on the 4th of July; unanimously resolved that the following expression of their mature and deliberate opinions on this subject should be transmitted to the Central Council:—

We, the members of the Council residing in Bath, beg to make the following observations on the proposal of the Eastern Medical Association to form a junction of the two Societies.

If it be necessary to establish a separate medical association in the eastern counties, on account of their distance from Worcester, it must also be desirable to institute similar societies in other parts of the kingdom, equally remote from the head-quarters of *the* Provincial Medical Association. It ought, therefore, first to be debated, whether it is better to have one general Association, or several local and separate societies, for the purpose of promoting the common objects of the profession. We are, however, in some degree, prevented from discussing this question, the medical men of the eastern counties having already decided the point, as far as they are concerned, by the institution of an independent Association. We regret that our eastern brethren have proceeded so far in their measures before the preliminary question was maturely considered, and finally settled. We think it might have been shewn that the interests of the profession would be best secured by an Association upon a large scale, to be truly and emphatically denominated "*The* Provincial Medical and Surgical Association;" while all the objects which the eastern gentlemen contemplate might be obtained by the adoption of "sectional meetings" of the members, as recommended in the Report of the Council, read at Birmingham, in 1834.

We shall consider the terms submitted to the Association by the Eastern Society in the order in which they appear in the draft of the forthcoming Report, circulated amongst the members of the Council.

The first condition is, "That the eastern members shall pay two-thirds of the annual subscription of one guinea to the parent Association."

Our objections to this condition are not founded on the inadequacy of the sum proposed for the payment of the volumes of our Transactions, as we believe fourteen shillings will more than repay the cost of printing, &c.; but we disapprove of the *principle* of establishing two classes of members, with a difference in the amount of their subscriptions. Many persons are so tenacious about trifles in pecuniary matters, that we fear this condition would give dissatisfaction to some of those who pay the higher sum, and thus jealousies would arise which would disturb the peace and harmony of the Society. If the local expenses of the Eastern Society can be defrayed by so small an annual sum as seven shillings, we consider that those gentlemen are gaining great advantages at a very cheap rate, and we wish their example to be followed by the formation of "sectional meetings" in other districts; but we think that every member ought to pay the same amount to "*the* Provincial Association."

The 2d condition is, "that each member shall receive the 4th volume of the Provincial Transactions, and all future volumes and pamphlets that may be published by the parent Institution."

If the union takes place, the eastern members ought certainly to receive all volumes published after their subscriptions are paid. Whether they would be entitled to the 4th volume may be doubtful; but this point is not very material, and not worth cavilling about.

The 3d condition states, "that all papers written by members of the Eastern Association, and sanctioned by its Council, shall be printed in the volumes of the Transactions."

We think the parent Association should pause before they agree to this condition. We doubt the expediency of having two Councils in one Society. Conflicting, or supposed conflicting circumstances might arise, which would lead to feelings of jealousy and rivalry, subversive of the interests of the Association. Moreover, we consider that this condition, if strictly enforced, would give a monopoly to the eastern members, to which, in common justice, they are not entitled. If, therefore, the union be adopted, the papers of the eastern members ought to be subjected to the same approval as those of the ordinary members.

The 4th condition is, "that a meeting of the two Societies shall be held once in four or five years in one of the large towns of the six eastern counties."

We consider that there is a want of reciprocity in this proposal—If we go into the eastern counties at stated periods, the eastern Association ought to return the accommodation, by having a meeting occasionally in one of the midland counties; and if this plan be practicable, there is evidently no necessity for a separate Society in the east. If the eastern Society was not in existence, the Provincial Association would, probably, have a meeting in one of the eastern counties once in a few years. Indeed, it is well known that it has long been our intention to assemble at Cambridge, and this, surely, is as much accommodation as the eastern members ought to expect, and as much as can be afforded to any district. The eastern members, however, establish a separate Society, because the distance of their residence prevents them from going to the usual places of meeting of the parent Association; and yet they require us to go the same distance once in four or five years. If the union be adopted, we think this condition should not be agreed to, but that the parent Society should be free to choose its place of annual meeting.

The 5th condition, "that the names of the eastern members be inserted in the Transactions," of course, requires no comment.

In conclusion, we beg to state our opinion, that a separate Society in the eastern counties was not required; that all its proposed objects might be accomplished by the members belonging, in the usual way, to the PROVINCIAL MEDICAL SOCIETY, and holding "sectional meetings" for local, social, and other purposes. If, however, the professional men of the eastern counties will not join *the* Provincial Association, as other members do, we think it better that the Societies should be distinct, and independent of each other. There is ample scope for the exertions of both. No improper rivalry or jealousy need prevail in separate societies having a common object. No collision ought to arise. Individuals residing in the vicinity of both districts might, with great propriety, if they pleased, belong to both Associations; and a combined meeting might occasionally be held with mutual convenience and advantage.

We, the members of the Council residing in Bath, are sorry to occupy so much of the time of the central Council; but we deem it our duty to offer our sincere opinions on a subject so important to the best interests of the Association; at the same time, we beg to state that if the members at the annual meeting should think differently from us, and agree to the proposed junction, we will do all in our power to promote the unanimity and extend the advantages of the united Association.

Signed, on behalf of the Bath members of the Council,

W. TUDOR, *Chairman.*

COLLEGE OF PHYSICIANS.

SUPPLEMENT TO THE STATUTE REGARDING THE ADMISSION OF LICENTIATES.

WE published, some months ago, a copy of the statute of the College of Physicians, by which it was enacted, that a certain curriculum having been gone through, the rank of physician and necessary license might be obtained with-

out the degree of M.D. To this law a supplement has been made, by which it is discretionary with the College to admit gentlemen who have attained the age of 40, and been settled in practice, even although they should not have gone through the whole of the specified course of education which is intended for the guidance of those who are hereafter brought up as physicians.

MEDICAL OFFICERS OF THE GUARDS.

We have made due inquiry into the affair alluded to by our correspondent, "An Army Surgeon," the week before last, and have great pleasure in stating, that the medical officers of the Grenadier Regiment of Guards have not been unmindful of what was due to their own character, and that of the profession to which they belong. They entered into a spirited correspondence on the subject alluded to in our former notice, the result of which has been highly satisfactory; and we may venture to predict no similar insult will again be offered to them.

ST. BARTHOLOMEW'S HOSPITAL.

The resignation of Dr. Hue, as lecturer on chemistry and the practice of medicine, has led to some changes in the medical school of this establishment. Mr. Pereira has been appointed to fill the chair of chemistry; while Dr. P. M. Latham and Dr. G. Burrows are to divide that of medicine between them.

ST. THOMAS'S HOSPITAL.

Acute Pericarditis supervening on Rheumatism *.

Thomas Day, æt. 30, butcher, admitted into Luke's Ward, under the care of Dr. Roots, December 17, 1835. Of robust frame, and accustomed to hard drinking; states, that after exposure to wet, about three weeks since, he was attacked with rheumatic pains in the shoulders and upper extremities, in which state he continued for a week, following his ordinary occupation, and therefore still exposed to changes of temperature. He was then attacked with pain in the region of the heart, accompanied with palpitation, which compelled him to leave his work. Since that period, the joints of his lower limbs have become affected, and he now complains of pain in all the principal joints; which are slightly swollen, but not discoloured, and any attempt at motion produces great aggravation of the pain. The surface of the body is covered with a profuse sweat; the tongue is coated and moist, but he has great thirst, and the bowels are confined. Pulse 98, hard and full. He gets but little sleep, and respiration is rather hurried. A very distinct rubbing sound may be heard over the region of the heart, and slight pain is produced by pushing up the diaphragm, but not by pressure in the intercostal spaces. He has never had any attack of this kind before.

V. S. ad ℥xviii. ℞ Pulv. Rhei c. Hydr. ℈j. stat. Hydr. Submur. gr. v. 6tis horis.

18th.—The bowels have been freely relieved, and the blood is much cupped and buffed. He has rather less pain in the joints, but is still unable to move. The skin continues moist, but the face is rather flushed. Pulse 90, and hard.

℞ Hydr. Subm. gr. v. 4tis horis. Applic. Hirud. xxiv. reg. cord.

Evening.—Breathing oppressed, and the pain in the region of the heart increased. Pulse 100, full and hard.

V. S. ad ℥xii.

19th.—Blood still cupped and buffed. The bowels have been much relaxed during the night. The pain in the joints much diminished, and there is but little about the region of the heart, except when the diaphragm is pushed up: the rubbing sound, however, still remains. Skin moist. Pulse 100, and rather hard.

Omitt. Hydr. Subm. ℞ Op. gr. ½ 4tis hor.

20th.—Bowels less relaxed; in other respects much the same.

℞ Hyd. Submur. gr. v. 4tis hor.

21st.—Has had but little rest. The joints less swollen, though he complains of more pain in those of the upper limbs, but he is still unable to move. Pulse 100, less hard, and full; skin moist; tongue thickly coated, and bowels relaxed. He has slight cough, with expectoration of frothy mucus. No alteration in the rubbing sound.

Applic. Hirud. xx. reg. cord.

Evening.—Bowels much relaxed.

Omitt. Hydr. Subm. et Opium. ℞ Mist. Cret. C. ℥jss. post sedes sing. liquidas.

22.—Has slept but little during the

* Reported by Mr. Jones.

night, and talked incoherently. The swelling of the joints has diminished considerably, but he is still unable to move them, on account of pain. The breathing is still rather short, and the cough increased. The rubbing sound is slightly lessened; the purging is diminished, and the tongue is less coated. He is now in a profuse perspiration. Pulse 96.

℞ Applic. Hirud. xii. reg. cord. ℞ Hydr. c. Cret. gr. v. Op. gr. ¼ 4tis hor. Inf. Catech. Comp. ℥j. cum sing. dos. pilul.

23d.—Has had a restless night, and talked incoherently. The bowels continue purged; the tongue still covered with white fur, except a streak down its centre and its tip, which are reddish. The action of the heart is irregular, intermitting at almost every third beat, and he has rather more pain on pressing up the diaphragm and taking a deep inspiration at the same time.

℞ Infus. Catech. C. ℥ij. sing. dos. pilul.

24th.—The bowels have only been relieved twice since the last report, and the tongue remains coated, its tip brown, and the central streak assuming the same character. The rubbing sound is less distinctly heard, but the pulse continues irregular, about 90, and will not bear much pressure. The cough has considerably increased, and the respiration is loud and sonorous.

C. C. ad ℥iv. reg. cord. Adhib. Cuc. Sicc. pectori et postea Emp. Lytt. amplum.

25th.—Bad night; bowels three times moved; much the same.

26th.—Has had a better night, and has more power over the joints of the lower extremities, but is still unable to move those of the upper. Bowels twice relieved, and his mouth now sore. He breathes more freely, coughs less, and the sputum is of a thick, tenacious character. The mucous rattle is principally heard on the left side of the chest. No pain is now produced by thrusting up the diaphragm. The rubbing sound is nearly inaudible, and there is less irregularity of pulse.

Omitt. Hydr. c. Cret. et Pulv. Opii et Inf. Catech.

27th.—Has had a tolerable night, though talking incoherently at intervals. Bowels remain quiet; tongue still coated, and rather dry. Joints entirely free from swelling. The cough better, and the expectoration diminished. Pulse 100, soft and regular. The rubbing sound is no longer heard. Perspiration not nearly so profuse as heretofore.

29th.—The respiration on the right side is of a wheezing character. In other respects he remains the same.

℞ Vin. Colch. ♏xx.; Liq. Ammon. Acet. ℥j. 6tis hor.

31st.—Bowels again rather relaxed for the last two days.

℞ Tinct. Opii, ♏v. cum sing. dos. mist.

Jan. 1st, 1836.—Is quite free from pain: the cough and expectoration have both decreased, but some mucous rattle with a snoring sound is still heard over a considerable part of the chest. Bowels less purged; tongue covered with a white fur.

8th.—Has been going on well since the last report, but to-day has rather more cough, with slight pain in the chest, and the respiration more sonorous.

Applic. Emp. Lytt. pect.

10th.—Is relieved of the pain in the chest.

12th.—Is much better, and so considers himself. He has now but a slight cough, and expectorates only a little frothy mucus. Pulse 84.

15th.—Going on well, but the cough troublesome at night.

Capt. Mist. 8vis hor.

18th.—Cough rather better, but there is still some snoring heard on the right side of the thorax.

Capt. Mist. bis die.

20th.—Says he feels quite well, excepting a little stiffness in the shoulders, and want of strength.

23d, evening.—Has caught cold, and the hoarseness which he has had during the day has much increased, accompanied with anxious respiration and some pain about the larynx, especially when pressure is made upon it. Pulse rather full. No return of the pain in the cardiac region, nor of cough. Skin moist; bowels open; tongue clean.

V.S. ad ℥xii. Emp. Lytt. guttur.

24th.—Better, but the voice still rough. Pulse 92 and soft.

25th.—Speaks more clearly. From this time he continued improving, and on

Feb. 9th.—He was presented well.

REMARKS BY DR. ROOTS.

This case of acute pericarditis supervening on rheumatism manifests some symptoms not always found in acute pericarditis, and is also remarkable for the

absence of one of the ordinary symptoms, as some authors imagine.

Nothing had been done for this man before he came in; and I mention this fact, because it is a question often asked me, whether bleeding in acute rheumatism does not give rise to inflammation of the pericardium. Here was a case of pericarditis supervening on acute rheumatism without the man having been bled previously.

Under the treatment detailed, he went on apparently very well until the 23d January, when he appeared to have taken some little cold. In a very few hours he felt dryness in his throat, and had pain upon pressure about the larynx. He had no particular increase of cough, but still it appeared as if he were about to have an attack of laryngitis; and Mr. Whitfield or Mr. Bullock saw him, and very properly, under these circumstances, took twelve ounces of blood from the arm, and ordered him a blister to the throat. This was quite sufficient to check the inflammatory action which had commenced there, and he has remained perfectly well ever since as regards the action of his heart, and, I may say, the inflammatory condition of the pericardium. In point of fact, excepting that it was a little disturbed, as you might expect, a little quickened in its action in consequence of the inflammatory attack about the larynx, there is no unnatural sound to be heard in the slightest degree over the region of the heart, and there does not appear to be the slightest reason why the man should not go out of the hospital perfectly well.

You will find in those cases that are related of inflammation of the pericardium, and many authors have insisted upon it as almost a diagnostic sign, that there has been a bellows-sound. Now I was early satisfied there might be inflammation of the pericardium, and that to a very considerable extent, without any necessity for the existence of a bellows-sound, and you will observe, during the whole progress of this case, there was not the slightest bellows-sound. I merely call your attention to this fact, because in many instances the stethoscope fails to give us any positive indication as regards the existence of inflammatory action going on in the pericardium. You may have, and more especially in the commencement, acute inflammation of the pericardium, without any indication by auscultation to warn you of its existence. It is true, that if, in conjunction with the general symptoms of pericarditis, you find a bellows sound, that would be some corroboration, because you do often meet with a bellows-sound, but still it would be only corroborative of other symptoms. Perhaps the most common symptoms are those of pain in the region of the heart, either of a dull or of an acute character, accompanied by some degree of dyspnœa. The pain is generally increased by taking a deep inspiration, and may, and often does, extend upwards to the clavicle, and backwards between the shoulders and the scapulæ, but it does not always do so; nay, it may extend down the left arm, even as far as the elbow, but this is not always, though it is occasionally, the case. In addition, then, to pain felt in the region of the heart, and proceeding to a greater or less extent from this region, there is some degree of dyspnœa; there is (I would say almost invariably, as far as my observation goes) a certain degree of anxiety of countenance; there is, at the same time, an inability to lie on the left side. The patient will tell you (and if you will remark it yourselves, you will find that in most cases this is the position that the patient seeks) that he lies on his back easiest; but you will find that he inclines a little to the right side.

With regard to the pulse, in the commencement of the disease it is often very various. It is sometimes hard, full, and strong; at other times you will find it quick, with some degree of feebleness and some degree of irregularity; but I believe that depends more especially upon the stage of the inflammation. If effusion to any considerable extent has taken place, then you may expect more or less irregularity in the pulse; and I believe this irregularity will be more especially increased, according not only to the extent but to the character of the effusion. If there be a considerable portion of lymph alone effused, then I do not believe that you will necessarily have much irregularity of the pulse; but if, in addition to a considerable effusion of lymph, you have also a considerable effusion of serous fluid, then I believe you will find the action of the heart become to a greater extent embarrassed; and, under such circumstances, you would expect to find, and would have a greater degree of, irregularity in the heart's action.

With respect to the bellows-sound, I myself believe that it is most commonly produced when there is not only inflammation of the pericardium, but of the lining membrane of the heart as well; and I do believe that most frequently, in acute pericarditis, you do have that inflammation accompanied by some inflammatory action of the lining membrane. In the case which I have above detailed, I do not believe that any inflammation of the lining

membrane existed at all; and therefore I believe we had no bellows-sound. But I think you will easily understand, that if inflammation be going on in the lining membrane of the heart at the same time that inflammation is existing in the pericardium, or indeed without the co-existence of the latter, I will not say you would always have, but you would not be surprised if the valves of the heart should be thrown into an irregular action. In simple inflammation of the lining membrane only, if a portion of the mitral valve, for example, had become adherent, so as to become bound down, and could not act, then you can easily see that the valve could not be properly closed, and you would expect to have a bellows sound. But I have seen cases of pericarditis accompanied by a bellows-sound, and where, upon the subsidence of all the other symptoms, the bellows-sound has also subsided, though, in many instances, it has not. I have, however, seen such cases, and I believe, that, when they occur, the abnormal sound has had its origin in a spasmodic affection of the valves of the heart, rendering their action for a time imperfect, without any effusion, without any adhesion interfering with the structure of the valves; and upon the subsidence of the inflammation, the valves, of course, recovered their perfectly healthy functions. This certainly is not easy to prove; but I do believe, that in many cases of inflammation of the pericardium where you have a bellows-sound, and where you afterwards lose it, that it is dependent upon that cause. That inflammation of the lining membrane does very often take place, we have the most positive proof; because we have it thickened, we have it changed in structure, and we have occasionally lymph effused, and a portion of the valve bound down to the parietes of the heart, preventing its perfect action. You have all the results of inflammation, and therefore there can be no question that it does very often exist. You find these appearances, too, where there is positive proof that pericarditis has existed, inasmuch as you find either a partial or a total adhesion of the pericardium to the heart itself—that is, of the loose to the investing pericardium.

It is stated in the case, that a rubbing sound was heard, and it is said that this sound is caused by the attrition of the two surfaces of the pericardium when they are partially connected by lymph, and when adhesion, though in progress, has not yet taken place between the two opposing surfaces. The sound has been compared to the creaking of new leather. It is quite impossible always to convey a correct idea with reference to sound; it is about the most difficult thing that I know. I confess myself to be not very learned in the sound of the creaking of new leather, neither do I know exactly how to distinguish between the creaking of new and old leather; but this I know, that over a considerable surface there was heard distinctly a tolerably loud rubbing sound.

I have just now stated that this sound has been explained upon the principle of friction being produced by the attrition of the two surfaces of the pericardium, when they are partially connected, by lymph impeding them; it is said that there is lymph effused on the surfaces of the pericardium opposed to each other, adhesion being in progress, but not completed. Now, in the first place, I do not think it necessary, in order to produce this rubbing sound, that there should be lymph effused on both surfaces of the pericardium—that is, on the free and on the investing surfaces; but I do not think it would be quite sufficient, in order to produce a rubbing sound, that you should have lymph effused merely on the investing surface. You can easily understand the rubbing sound would be augmented if there were lymph effused on both the opposing surfaces; but still I do not believe but you would have, to a certain extent, the same phenomenon produced, provided lymph was effused only on one surface.

It is further said to occur when adhesion is in progress, but has not yet taken place, between the two opposing surfaces. Now it appears to me very doubtful that adhesion does so often take place. There can be no doubt that we do occasionally find partial or general adhesion as the result of lymph effused upon the investing surface of the pericardium, but still I do not consider it is absolutely necessary that adhesion should follow the effusion of lymph. If the lymph be only effused on the investing surface, I believe that, under treatment, it very frequently happens adhesion does not take place. I am quite sure that any one who has frequently attended post-mortem examinations will remember to have seen, where the patients have died of other disease than a morbid condition of the heart, considerable large white spots, of various sizes, upon that viscus, evidently the result of organized lymph deposited there on some former occasion, and evidently the result, of course, of some inflammatory action, but in which there has been nothing like adhesion. Such I look upon to have been cases of inflammatory action of a portion of the pericardium, terminating

in partial, but not entire, absorption; so that you there have a mass of organized lymph. I am quite sure that a year never elapses without our seeing more than one or two such examples in our dead-house.

I mentioned to you before, that this rubbing sound has been generally considered to apply more especially to what has been called the *dry* form of the disease, that is, where you have a considerable effusion of lymph, with scarcely any, if any, serum.

I have another reason for believing that adhesion does not always necessarily follow the simple effusion of lymph on a portion of the pericardium, viz., I do believe that, under the influence of treatment calculated to cure, if I may use that term, the inflammatory action which is going on, and to produce entire absorption, or absorption to a considerable extent, of the lymph which has been effused, the disease may be cured without the occurrence of any adhesion. I believe this to have been the case with the patient whose case we are now considering. I do not believe at this present moment there is any adhesion between the true pericardium investing the heart and the loose pericardium.

With respect to the treatment that was pursued in this man's case, you will remember he was bled twice from the arm, was cupped, and was leeched repeatedly; and though the rheumatic inflammation was considerably diminished, as the effect of the bleeding, yet still the heart never lost, to any considerable extent, its rubbing sound, until his system was put under the influence of mercury. As soon as his mouth became sore, Mr. Jones, who closely watched the case, observed that the rubbing sound diminished. This would probably have been the case sooner, but in consequence of the highly irritable condition of the mucous membrane of his bowels, we were obliged to suspend for some days the use of the mercury, and thus some considerable time was necessarily lost before his bowels resumed such a condition as to bear it; but so soon as his mouth became sore, the rubbing sound diminished. He was kept for some time under the influence of the mercury, and the sound entirely ceased. The treatment adopted was that which is proper for pericarditis generally. You will not find it perhaps always necessary to take blood from the arm in those cases which come into the the hospital, because they do not come here in the early stage. In this case it was absolutely necessary to take blood from the general system, but afterwards local depletion was principally depended upon.

There is one other observation which I would make with respect to the treatment of pericarditis, viz., I have found that, of late years, my treatment has been much more entirely successful than it was some years before. I treated many cases of pericarditis formerly at this hospital, and the symptoms were all apparently subdued, but still there has been a considerably increased action going on in the heart, accompanied by more or less bellows-sound, even when it was impossible to discover that there was any thing like pain caused by pressure either between the intercostal spaces over the præcordial region, or by pressing the diaphragm up against the apex of the heart. I am quite sure that these individuals went out of the hospital apparently cured when they were not, and when, upon the slightest recurrence of cold, or upon the slightest irregularity of diet, or an increased quantity of stimulants being taken into the system, they would have a return of the inflammatory disorder. I believe that, under these circumstances, there is still some degree of inflammatory action going on insidiously in the lining membrane of the heart. Having had an opportunity of seeing two or three such cases return to me with renewed inflammatory action, I have since that time adopted a different plan, viz., as long as there was this increased activity about the heart, as long as there was any thing like a bellows sound, provided it was not of old standing, the result of former attacks, I have invariably thought it right to keep my patient for a greater length of time under the influence of mercury, and frequently from time to time to apply either leeches over the region of the heart or cupping-glasses, so long as there was the slightest proof of insidious inflammation still existing; the consequence is, I may say in the last three cases, the patients perfectly recovered. I remember an admirable case which occurred last year, in a man named Jones, who had one of the severest attacks of pericarditis I ever saw, and who went out, as I believe, perfectly well, in consequence, I am satisfied, of keeping him a much longer time than I was wont to do under the influence of mercury, and still carrying on, from time to time, the application of leeches over the præcordial region. In consequence of the inflammatory action producing a great degree of irritability in the heart, you would expect, and do have, even for some considerable time after the inflammatory action has subsided, an irritable condition of the heart, and a quick jerking action, but the pulse will be soft and easily compressible.

Under these circumstances, more especially if the pericardial inflammation has been accompanied by rheumatism, you will find, I think, small doses of colchicum, either alone or in combination with digitalis, and sometimes again combined with henbane or with opium, the best means of relieving the irritable condition of the heart. Such was the case in this man, and it was resorted to certainly with manifest advantage.—*St. Thomas's Hospital Reports*, No. 4, just received.

MEETING OF THE BUCKS MEDICAL ASSOCIATION;

WITH THEIR PETITION TO PARLIAMENT, RESPECTING THE POOR-LAW MEDICAL ARRANGEMENTS.

To the Editor of the Medical Gazette.

SIR,

I BEG to hand you an abstract of the minutes of the last meeting of the Bucks Medical Association, and a copy of a petition in course of signature, which will very shortly be presented to both houses of parliament.—I have the honour to be,

Sir,

Your very obedient servant,

ROBERT CEELY.

Aylesbury, July 10, 1836.

At a Meeting of the Bucks Medical Association, lately held at Aylesbury, Richard Steel, Esq. Berkhampstead, in the chair, amongst other resolutions, it was resolved—

That this meeting perceives with regret that the efforts hitherto made by the medical profession to procure relief from the arbitrary, unjust, and degrading treatment to which it has been subjected by the poor-law authorities, have proved unavailing: it is therefore considered highly expedient to petition both Houses of Parliament forthwith, praying for a committee of inquiry into the subject.

That a Committee be appointed to draw up the Petition.

That copies thereof be transmitted to the different Medical Associations.

That application be made to the Council of the Provincial Medical and Surgical Association, requesting that they will take such steps as may be deemed proper for bringing to the consideration of medical practitioners in general, the necessity of an immediate appeal to the legislature on the subject of medico-parochial attendance; and hoping, that at the ensuing meeting at Manchester, the Council will please to make such arrangements as will ensure a full and practical consideration on this important subject.

That the thanks of the meeting are due to the Deputation, for the efficient manner in which the presented the protest.

ROBT. CEELY, Hon. Sec.

To the Honourable the Commons of Great Britain, &c.

The humble Petition of the undersigned Medical Practitioners, in and near the County of Buckingham, sheweth,

That your petitioners perceive, with much concern, the continuance and extension of the pernicious system of medical relief authorized by the Poor Law Commissioners of England and Wales.

That this system is unjust to the sick paupers, injurious to the community, and unfair towards the medical profession.

That the important objects of medical exertion—viz. the cure and prevention of disease — are impeded, and sometimes wholly frustrated, by the existing regulations.

That the circumstances attending the appointment of medical officers of parochial unions must inevitably injure and degrade the medical profession in its moral, its social, and its scientific character.

That your petitioners are anxious to avow their conviction of the many evils connected with the past and present modes of administering this branch of parochial relief.

That your petitioners venture to assert that a supply of prompt and efficient medical aid to those who may be deemed proper objects, is not only in accordance with the dictates of humanity, due to the interests of science, and the fair claims of the medical profession, but is absolutely indispensable to a sound economy in parochial expenditure, and to a rational diminution of the causes of pauperism.

That your petitioners feeling assured that a system of medical relief founded on such a basis, is the only one that can claim and receive the sanction of your Honourble House; and being convinced that the arrangements at present adopted will be found opposed to its benevolent intentions; humbly beseech your Honourable House to be pleased to appoint a committee of inquiry into the present system of medical relief to sick paupers, and into the propriety of making any change in the same; and your petitioners will ever pray, &c.

[A similar petition has been prepared for the Lords.]

POISONING WITH SULPHATE OF COPPER.

We find a short account of a case of poisoning with this substance in the *Times* of Wednesday (13th). Two female children, one seven and the other two years of age, in walking along Weymouth street, Walworth, picked up "a small lump of sulphate of copper," which appears to have been swept out among the dust from an oil-shop. Attracted by the colour of the substance, which the elder girl seems to have taken for stained glass, the children divided the piece of blue vitriol between them, when the younger one put her share into her mouth, and, not disliking its taste, immediately swallowed it. Upon reaching home, she was taken ill; the nature of what she had swallowed was ascertained, but although every means were employed to counteract the poison, they proved unavailing: the child died in about an hour from the time of taking the sulphate. An inquest being held, a verdict of "accidental death" was returned. We suppose there was no post mortem examination in the case, as the jury stated nothing with respect to the actual cause of death. If our supposition be incorrect, and there have been a medico-legal inspection of the body, we shall be glad to receive from the medical gentleman who conducted it, some account of the morbid appearances observed; for instances of poisoning with blue vitriol are very rare. The symptoms, too, must have been remarkable, where death ensued so speedily. Dr. Percival says, in his Essays, that the most dreadful convulsions he ever witnessed, were produced in a young woman who swallowed about two drachms of the sulphate, in a fit of desperation: she recovered, however.

RIOTS OF THE PARIS STUDENTS·

THE CONCOURS.

The newspapers will have informed our readers of the disgraceful riots perpetrated by the Parisian students on Saturday last. Doors were broken open, windows smashed, seats torn up, professors' robes and caps reduced to rags, and in short there is no knowing what further outrage might not have been effected, had not the *gens d'armerie*, horse and foot, interfered, and quelled the alarming tumult. Damage to the amount of several hundred pounds sterling has been done: and it has even been in contemplation of government to close the School altogether. But what has been the cause of all this? Why, after a protracted *concours* for the Chair of Anatomy, left vacant by M. Cruveilhier, M. Breschet obtained the appointment. The *students*, however, judged that a M. Broc, a favourite of their own, was better entitled to it. *Vive le Concours!*

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

July 14, 1836.

William Clark Hinton, Plymouth.
Oliver Fowler, Kingham, Oxon.
James Metcalfe Appleton, Stokesby, Yorkshire.
Evan Pierce, Denbigh.
Richard Keene.
Frederick Adam Catty, Cambridge.
William Miller Couttate, Barnley.
Louis Duncan Whitaker, Bampton, Oxon.
William John Cumming, Matlock, Derbyshire.
John Hurdon, Launceston, Cornwall.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *July* 12, 1836.

Abscess . .	2	Inflammation .	21
Age and Debility .	20	Bowels & Stomach	5
Apoplexy . .	7	Brain . .	2
Asthma . .	9	Lungs and Pleura	2
Cancer . .	1	Insanity . .	8
Childbirth . .	3	Liver, diseased .	7
Consumption .	56	Measles . .	9
Convulsions .	29	Miscarriage . .	2
Dentition or Teething	5	Mortification .	5
Dropsy . .	13	Rheumatism .	1
Dropsy on the Brain	6	Scrofula . .	1
Erysipelas . .	1	Small-pox . .	12
Fever . . .	9	Spasms . .	5
Fever, Scarlet .	4	Stricture . .	2
Fever, Typhus .	1	Unknown Causes	10
Gout . . .	2		
Heart, diseased .	1	Casualties .	10
Hooping Cough .	5		

Increase of Burials, as compared with the preceding week . . } 111

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N.*
Longitude 0° 3′ 51″ W. *of Greenwich.*

July, 1836.	Thermometer.		Barometer.	
Thursday . 7	from 43	to 73	30·13	to 30·12
Friday . . 8	49	75	30·16	30 18
Saturday . 9	48	78	30·15	30·13
Sunday . . 10	55	83	30·07	30·08
Monday . . 11	60	79	30·04	29·80
Tuesday . . 12	59	72	29 68	29 87
Wednesday 13	45	73	29 94	29 91

Prevailing winds, W. by N. and W. by S.

Generally clear, except the mornings of the 9th, 10th, and 12th, and evening of the 13th: rain in the morning and afternoon of the 12th.

Rain fallen, .025 of an inch.

Charles Henry Adams.

NOTICES.

The *reclamation* of J. H. against certain statements made at the Medico-Botanical Society—which were never reported in this journal—cannot be admitted consistently with our principle of discountenancing needless controversy as much as possible.

"A Licentiate" is referred to our present volume, page 148, for one portion of the information which he seeks; for the rest, we would advise him to apply by letter to the Registrar of the College.

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, JULY 23, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XLII.

In this lecture we shall in the first place examine the family

Melanthaceæ.

Also termed Colchicaceæ, or Veratreæ.

Characters.—The plants are herbaceous, and have fibrous or fascicled roots, underground fleshy stems (rhizomes or cormi), sheathing leaves with parallel veins, flowers unisexual or hermaphrodite, with an inferior petaloid perianth of six pieces, which sometimes cohere at their base into a tube; six stamina, the anthers of which are usually turned inwards, a three-celled many-seeded ovary, a trifid or three-parted style, the fruit a trilocular capsule, generally divisible into three pieces, and seeds having a membranous testa, with fleshy albumen. In their effects the plants of this family are very analogous to those of Ranunculaceæ, though in structure they are altogether different.

Only two genera require notice, namely, Veratrum and Colchicum.

1. *Veratrum album.*

History. — Ελλεβορος λευκος, or White Hellebore, is mentioned by Hippocrates and other ancient writers, but some uncertainty exists as to the plant meant. Sibthorp thinks it was the Digitalis ferruginea. I must refer those interested in this question to Dierbach's "*Die Arzneimittel des Hippocrates.*" The radix veratri of commerce is obtained not only from Veratrum album, but also from Veratrum Lobelianum, which some consider a mere variety of the V. album.

Etymology.—The term Veratrum is said by Lemery to be derived from *vere atrum* (truly black) on account of the colour of the root.

Characters.—The root of Veratrum album consists of numerous white cylindrical fibres, arising from a short underground stem or rhizome, which is brown externally, but white internally. The stem is two or three feet high, smooth below, but hairy above. The lower leaves are oval, the upper ones oblong, lanceolate, surrounding the stem at the base, plaited longitudinally, on the upper surface smooth, their lower surface furnished with soft white hairs. The inflorescence is a large, many-flowered panicle. The perianth is composed of six yellowish white sepals, marked with green veins. The six stamina are shorter than the sepals. The ovaria are three in number, with spreading styles, each terminated by a bifid stigma. The capsules are three, and contain numerous compressed winged seeds. The upper flowers are fertile, the lower ones are usually male.

The plant is a native of the Alps, and flowers in July and August. Sprengel places it in *Hexandria Trigynia.*

Physical properties.—The radix veratri, of the shops, consists of a single or double-headed rhizome, of a conical form, two or three inches long, and about an inch in its mean diameter, rough, blackish brown externally, and whitish internally, sometimes furnished with the root fibres, but more commonly deprived of them. Its odour is feeble, its taste at first bitter, then acrid.

Chemical properties.—Pelletier and Caventon analysed this root, and obtained the following results:—

Fatty matter composed of stearine, elaine, and a volatile acid, similar to *Cevadic acid.*
Supergallate of *veratria.*
Yellow colouring matter.
Starch.
Woody fibre.
Gum.
Salts (of potash and lime).
Silicic acid.

Physiological effects.—(*a.*) *On animals generally.* It appears from the experiments of Schabel to be poisonous to all classes of animals. It acts as a local irritant, and, probably, becoming absorbed, exerts a specific influence over the alimentary canal and the nervous system. Three grains of the extract applied to the nostrils of a cat killed it in sixteen hours.

(*b.*) *On man* it also operates as a powerful poison. A few grains applied to the nose excite violent sneezing. Placed in contact with the skin it causes redness and inflammation. Swallowed in small doses, as one or two grains, it is said to act as an emetic and purgative. In large quantities it produces gastro-intestinal inflammation and an affection of the nervous system. The symptoms are, violent vomiting and purging (sometimes of blood), tenesmus, burning sensation in the mouth, throat, œsophagus, stomach, and intestines, small, and in some cases almost imperceptible pulse, cold sweats, giddiness, convulsions, and insensibility, terminating in death.

Use.—It is rarely employed internally, yet occasionally, perhaps, it might be substituted for colchicum. It is said, however, to be uncertain in its operation, an objection which equally applies to colchicum. It has been used internally in affections of the nervous system—for example, mania and epilepsy; in chronic skin diseases, as lepra, as an irritant purgative; in torpid conditions of the large intestines, and in gout, in consequence of its having been at one time supposed to be the active ingredient of the *Eau médicinale.* It should be given in small doses (of one or two grains) which are to be gradually increased. In the Pharmacopœia there is a preparation absurdly termed *vinum veratri*, made of this root and a dilute spirit. Its dose in cases of gout is from ten minims gradually increased to thirty, or more.

Powdered white hellebore is frequently used as a sternutatory in amaurosis, and affections of the brain. It is employed, we are told, by snuff-makers, and the German snuff, called Schneeberger, is said to contain it.

The *unguentum veratri* of the Pharmacopœia is employed against the itch, where the use of sulphur applications is objected to. Powdered veratrum is one of the ingredients in the compound sulphur ointment.

The *decoctum veratri* is also employed in skin diseases, and likewise to destroy pediculi.

Antidote.—I am not certain that any antidote is yet known. Astringent solutions, however, have been recommended; and, in one case that fell under my notice, infusion of galls seemed to give relief. Its efficacy is usually referred to the gallic acid, which combines with the veratria and diminishes its solubility.

2. *Veratrum Sabadilla.*

History.—This plant was first noticed by Monardes, in 1572. Its specific name is derived from Cebadilla, the diminutive of the Spanish word Cebada, barley,—on account of the fancied resemblance of its inflorescence.

Physical properties.—Under the name of *Semina Sabadillæ*, is sold in the shops the fruit of one or two species of Veratrum. That which comes from Mexico is obtained, not from the V. Sabadilla, which yields the fruit brought from the Antilles, but from the V. officinale.

The Semina Sabadillæ of the shops consists of a trilocular, thin, dry capsule, of a reddish grey colour, each cell of which contains two brownish black seeds. Its taste is bitter, acrid, and persistent; its odour none.

Chemical composition.—Two analyses have been made of these seeds, and the following are the results:—

Analysis by Pelletier and Caventou.

Fatty matter, composed of stearine, elaine, and *cevadic acid.*
Wax.
Supergallate of *veratria.*
Yellow colouring matter.
Starch.
Lignin.
Gum.

Analysis by Meissner.

Veratria	0·58
Bitter extractive, with an undetermined acid	5·97
Sweet extractive	0·65
Oxidized extractive	24·14
Gum	4·82
Fatty matter	24·63
Wax	0·10
Resin soluble in æther	1·45
—— insoluble in æther	8·43
Phyteumacolla, with potash salts	1·11
Oxalate lime and bassorin	1·06
Woody fibre	20·56
Water	6·40
	100·00

The *cevadic acid* mentioned in the analysis of Pelletier and Caventou, is obtained by the saponification of the fatty matter found in the sabadilla seeds. It is a volatile fatty acid, somewhat analogous to butyric acid.

The *veratria* mentioned in the foregoing analysis has been subsequently discovered to be a mixture or compound of several substances.

Physiological effects.—The effects of the Semina Sabadillæ are analogous to those of the radix veratri, already mentioned: that is, they are local irritants, become absorbed, and act specifically on the nervous system. Plenk and Lentin have related cases of poisoning from their external use.

Uses.—They have been employed internally against worms, the dose being from four to six grains. Externally they have been used to destroy vermin, and hence the Germans term them *Läusesaamen.* The *tinctura seminum sabadillæ* is made, according to Dr. Turnbull, by digesting for ten days a quantity of the seeds, freed from their capsules and bruised, in as much strong alcohol as will cover them. It has been used as a rubefacient in chronic rheumatism and paralysis. It causes a tingling sensation, and after a few days' use brings out a slight eruption. When rubbed over the region of the heart, Dr. Turnbull states it has in some instances reduced the force and frequency of the pulse, and relieved nervous palpitation. The *extractum seminum sabadillæ*, prepared by evaporating the tincture, has been used in doses of one-sixth of a grain, in the form of pill, in rheumatic and neuralgic cases; its dose should be gradually increased. It induces, we are told, a sensation of heat and tingling on the surface of the skin, and sometimes acts as a diuretic.

Impure or Commercial Veratria.

History.—In the year 1819, Pelletier and Caventou discovered, in the fruit of the Veratrum Sabadilla, a substance which they termed *veratrine*, and which is now universally called *veratria.* It was discovered, about the same time, by Meissner. Very recently, Couerbe has shown that it is not pure, but consists of at least three substances—namely,

Veratria, properly so called, or *pure veratria.*
Veratrin.
Sabadillina.
Resinigomme, or the monohydrate of Sabadillina.

As, however, most of the experiments have been made with Pelletier's veratria (that is, the impure veratria), and as this is the form in which we meet with it in commerce, and, therefore, in which it is employed medicinally, I must notice it generally before speaking of its constituents.

Properties of commercial or impure veratria.—The veratria sold in the shops, is, for the most part, brought from Paris, where it is extracted from the Semina Sabadillæ. It is in the form of a dirty or brownish-white inodorous powder, having a bitter acrid taste, and producing a feeling of numbness and tingling when applied to the tongue. It is usually said to be void of bitterness, but all the samples I have met with were bitter. It is very soluble in alcohol and æther, but only slightly so in water. It possesses alkaline properties: thus it restores the blue colour of reddened litmus, and it unites with acids to form uncrystallizable salts. It fuses when heated, and in this state has the appearance of wax: on cooling, it has a brownish transparent appearance.

Characteristics.—The distinction between this alkali and colchicia, will be pointed out when speaking of the latter substance.

Salts of veratria.—Veratria forms, with acids, salts which crystallize with difficulty. The sulphate and the muriate are hitherto the only salts which have been obtained in this state. Both are soluble in water.

Physiological effects of impure or commercial veratria.—Applied to the olfactory membrane, veratria causes violent sneezing; and when placed in contact with the conjunctival membrane it excites considerable irritation, and an abundant flow of tears. To whatever part of the body it be applied, veratria acts as a local irritant, and affects the nervous system, inducing tetanus. When taken internally, its effects vary with the dose. (*a.*) *In small or medicinal doses* it excites warmth in the stomach and bowels, which extends to the chest and extremities; tingling in various parts of the body, and frequently perspiration; sometimes nausea and vomiting, occasionally purging (Magendie says it produces copious alvine evacuations); and in a few cases purging has been induced. Such are the effects stated by Dr. Turnbull to be produced by the medicinal employment of veratria. (*b.*) *In large or poisonous doses*, I am not aware that the effects of veratria have been observed in the human subject; but given to animals it excites inflammation of the stomach and bowels, becomes absorbed, and produces tetanus.

Uses.—Veratria has been applied externally in nervous palpitation, particularly when this occurs in gouty and rheumatic cases, in anasarca (as a diuretic), in neuralgia, in rheumatism, and gout; (but it must not be used while the in-

flammation is of an active kind), and in paralysis. In these cases the veratria is used either in the form of ointment or of tincture.

It has also been employed internally, as a substitute for the preparations of colchicum, in any of the cases in which the latter remedy has been administered: for example, it has been used in gout, rheumatism, painful spasmodic affections; and Dr. Turnbull says he has administered it with good effect in diarrhœa.

Administration.—It may be taken in substance, in the form of pill, in doses of a sixth of a grain. A *tincture of veratria* may be made by dissolving veratria in alcohol. Magendie's formula for it is the following:—Dissolve four grains of veratria in an ounce of alcohol, and of this let from ten to twenty-five drops be taken as a dose. Some prefer using a *salt of veratria*, as the sulphate or tartrate, in doses of 1 6th or 1 4th of a grain. For external use, we use veratria in the form of ointment or alcoholic solution. The *unguentum veratriæ* is composed of an ounce of lard and from ten to twenty grains of veratria (Magendie uses four grains only). Of this, a piece the size of a large nut may be rubbed with the hand, from five to fifteen minutes, night and morning. The *alcoholic solution*, for external use, is made of one ounce of alcohol and from ten to twenty grains of veratria. The above formulæ are, for the most part, taken from Dr. Turnbull's work.

Test of the goodness of veratria.—Veratria should be entirely soluble in alcohol: if four grains be dissolved in a drachm of alcohol, and a small portion rubbed on the wrist, or forehead, heat and tingling are manifested within three or four minutes.

1. *Pure Veratria, or Veratrine.*

Properties.—It has the appearance of a resinous solid, almost white, and incrystallizable; fusible at 207° F. It has an alkaline reaction on vegetable colours, and combines with acids to form salts. It is nearly insoluble in water, but readily dissolves in alcohol and æther.

Composition.—According to Couerbe, it consists of

Carbon	71·21	or 34 atoms .... $34 \times 6 =$	204·
Hydrogen	7·51	or $21\frac{1}{2}$ atoms	21·5
Nitrogen	4·85	or 1 atom	14·
Oxygen	16·39	or 6 atoms .... $6 \times 8 =$	18·
	100,00		287·5

Effects.—It is odourless, but has an extremely acrid taste, without bitterness. A very minute, and, in fact, imponderable portion, applied to the olfactory membrane, occasions violent sneezing. Very small doses occasion most violent vomiting, in consequence of their irritating the mucous membrane of the stomach. A few grains are sufficient to occasion death.

2. *Veratria.*

This term has been employed, by Couerbe, to designate a brown solid, obtained in the purification of veratria. It is insoluble in æther (by which it is distinguished from veratria) and water, melts at 383° F., and when heated strongly is decomposed, giving rise to nitrogenous products. Although it combines with acids, it neither saturates them nor forms any crystallizable salt with them. It is composed of

28 atoms carbon ...... $28 \times 6 =$	168
18 atoms hydrogen	18
1 atom nitrogen	14
6 atoms oxygen ...... $6 \times 8 =$	48
	248

Its action on the animal economy has not yet been determined.

3. *Sabadillina, or Sabadilline.*

History.—This alkali has likewise been obtained in the purification of veratria.

Properties.—It is a white crystallizable alkaline solid, which enters into fusion at 360°, taking on then a brownish resinous aspect. At a higher temperature it becomes black, and is decomposed, leaving a large carbonaceous residuum. It dissolves easily in hot water, and, as the solution cools, is deposited in a crystalline form. It is soluble in alcohol, but cannot be crystallized from the solution; it is insoluble in æther. Concentrated sulphuric acid carbonizes it.

Composition.—It consists of

20 atoms carbon ...... $20 \times 6 =$	120
13 atoms hydrogen............	13
1 atom nitrogen ...... $1 \times 14 =$	14
5 atoms oxygen ...... $5 \times 8 =$	40
1 *atom anhydrous sabadillina*	187
2 atoms water ...... $2 \times 9 =$	18
1 *atom hydrous or crystallized sabadillina*............	205

Characteristics.—It is distinguished from veratria by the following characters:—its crystallizability, its great solubility in water, and its insolubility in æther.

Salts of sabadillina.—Sulphate of sabadillina is crystallizable.

Effects.—It is a very acrid substance. Its effects are believed to be similar to veratria. Dr. Turnbull, who has used it, considers it inferior to veratria as a medicinal agent.

4. *Gum Resin of Sabadi'lina.*

This is called by Couerbe, *resinigomme;* by others, *monohydrate of sabadillina.*

Properties.—It is a reddish solid, soluble in water and alcohol, but slightly so in æther. It saturates acids, but does not form crystalline compounds with them: alkalies throw it down from its saline combinations.

Composition.—It is composed of

20 atoms carbon ....20 × 6....	120
11 atoms hydrogen	11
1 atom nitrogen	14
6 atoms oxygen ....6 × 8....	48
	196

By comparing this with sabadillina, it will be seen that it contains one atom of water more than anhydrous sabadillina, and an atom of water less than crystallized sabadillina; their relations will be thus understood:—

1 atom *anhydrous sabadillina*	187
1 atom water	9
1 atom *resinigum*, or monohydrate of sabadillina	196
1 atom water	9
1 atom *crystallized sabadillina*, or the deutohydrate	205

Characteristics.—It differs from sabadillina in not being crystallizable, and in containing an atom more water than anhydrous sabadillina, and an atom less than crystallized sabadillina.

Effects.—Its effects on animals are not known.

Colchicum autumnale.

History.—Colchicum was known as a medicine to the ancient writers, and is mentioned both by Dioscorides and Pliny. It received its generic name from *Colchis*, where it is said to have grown abundantly. Its specific name has reference to its time of flowering: the common name for it is *meadow saffron.*

Characters.—This indigenous plant has a fibrous root: the underground stem or cormus (improperly termed root or solid bulb) is ovate and fleshy, and covered by a loose brown membrane; the leaves flat, are broadly lanceolate, erect; the flowers arise from the cormus by a long narrow white tube; perianthium six-partite,—the segments oblong, of a pale purple: stamina six, inserted on the perianthium,—anthers yellow; ovarium at the base of the cormus,—style long, running the length of the tube. The fruit consists of three follicles; the seeds are whitish, polished, albuminous. A remarkable circumstance attending this plant is the interval between the inflorescence and the maturation of the seeds: the one taking place in September, the other not occurring until the following spring, or rather summer. The leaves are produced in the spring along with the fruit, and disappear before the flower appears; and the flower thus appearing without leaves, has led to the name of "*naked lady*," frequently applied to it by the peasantry. It belongs to *Hexandria Trigynia*, in the Linnæan arrangement.

Physical properties of the cormus.—The cormus (termed in the Pharmacopœia, *radix colchici*) should be gathered in July or August, before it flowers, as it possesses at this time the greatest activity. At this period it is about the size of a chestnut, rounded on one side, flattened on the other, where is perceived the fibrous germ of a new bulb, which, if allowed to grow, shoots up and bears the flower, while the old cormus wastes, becomes insipid, and inert. Internally the cormi (gathered in August) are white, solid, fleshy, and succulent, and are very feculent: they have an acrid bitter taste. They should be sliced and carefully dried.

Physical properties of the semina colchici.—Colchicum seeds are small, spherical, of a dark-brown colour, without odour, but having a bitter acrid taste. The testa is rough, and the strophiola large and fleshy. Internally the seeds are white, and consist of a minute embryo lodged in a horny elastic albumen, which is difficult to reduce to powder. These seeds doubtless contain the same active principle as the cormi.

Chemical properties.—Pelletier and Caventou give the following as the constituents of the colchicum cormus:—

Fatty matter (stearine and elaine), and a peculiar volatile acid.
Veratria.
Yellow colouring matter.
Gum.
Amidine.
Inuline in abundance.
Lignin.

I have already mentioned that the veratria of commerce, and such as Pelletier has described it, is a compound substance, consisting of *veratria*, properly so called, *veratrin*, *sabadillina*, and the *gum resin of sabadillina*. However, it must be recollected that these remarks apply to the impure

veratria, obtained from Veratrum Sabadilla; but it was reasonable to infer that the veratria of colchicum was of a similar nature. Geiger and Hesse have subsequently examined the alkali of colchicum, and finding its properties different from those of the alkali (veratria) obtained from genus Veratrum, they have given it the name of *Colchicine* or *Colchicia*. As yet I have not seen this substance, but their account of it proves it to be very analogous to sabadillina, if it be not identical with it, which I strongly suspect.

Tincture of guaiacum develops with fresh colchicum a blue colour similar to that produced with zymone, one of the constituents of gluten of wheaten flour. From this circumstance it has been assumed (and with great probability) that the colchicum cormus contains gluten.

Physiological effects of the cormi.—The effects of colchicum vary with the season of the year; and the remarks I am now about to make refer to the cormi when collected at the season of their greatest activity, namely, about July or August.

(*a.*) *Effects on animals generally.*—The cormi are, I believe, poisonous to all classes of animals, and the statements met with in books, of an opposite nature, are, I think, founded in error. On deer, oxen, and dogs, this poisonous action has been proved experimentally. It is a local irritant, and when swallowed causes inflammation of the alimentary canal. The same inflammation of the intestinal tube is produced by its injection into the veins, from which it appears that the action of colchicum on this canal is of a specific kind.

(*b.*) *Effects on man.*—In *small doses* colchicum increases the secretions of the intestinal mucous membrane, and of the kidneys, and in some cases promotes the exhalation from the skin. It also often reduces the frequency of the pulse. In *larger doses* it acts as an emetic and purgative, and causes frequent desire to pass the urine. In *excessive doses* it usually operates as a powerful narcotico-acrid poison: that is, it produces gastro-intestinal inflammation, with symptoms indicative of a disordered condition of the nervous system. In a case of poisoning by about two ounces of colchicum wine, reported in the tenth volume of the MEDICAL GAZETTE, the symptoms were acute pain in the bowels, coming on in about an hour and a half after taking it, vomiting, tenesmus, weakness of limbs; pulse small, slow, and feeble, ultimately becoming almost imperceptible, and intermitting; suppression of urine; respiration hurried; copious liquid stools; loss of sight for a minute or two after getting out of bed; death in forty-seven hours after taking the poison. In this case the only indications of an affection of the nervous system were weakness of the limbs, the temporary loss of sight, and the slowness and feebleness of the pulse.

I may here remark, that neither in this, nor in a fatal case related by the late Mr. Haden, did convulsions occur; and the latter gentleman remarked, from a large experience, that colchicum never produced tetanic convulsions, nor any thing resembling them. However, Magendie says that veratria produces this effect; and the same statement is made by Geiger and Hesse with respect to colchicia, the newly-discovered alkali in colchicum.

Uses.—The following are some of the cases in which colchicum has been employed:—

1. In *dropsies* it has been recommended with the twofold view of producing purging and diuresis. I have seen it beneficial in anasarca of old persons.

2. In *gout.*—The circumstances that have led to the use of colchicum in gout are these. Nearly seventy years ago, M. Husson, a military officer in the service of the King of France, discovered, as he states, a plant possessed of extraordinary virtues in the cure of various diseases. A preparation was sold by him under the name of the *Eau Médicinale*, which acquired great celebrity for abating the pain and cutting short the paroxysm of gout. Various attempts were soon made to discover its active principle. Cadet and Parmentier, in 1782, declared that the preparation contained no metallic or mineral substance, but that it was the vinous infusion of some bitter plant or plants; though what these were, chemistry did not enable them to discover. The Veratrum album, Euphorbia, Gratiola, and many other plants, have in turn been declared to be the active vegetable, but colchicum has of late years been generally regarded as the effective constituent; and Dr. Paris gives the following as the recipe for this quack preparation:—"Take two ounces of the root of colchicum, cut it into slices, macerate it in four fluid ounces of Spanish white wine, and filter." Most writers who have employed colchicum speak of its wonderful power of relieving a paroxysm of gout. In two cases in which I have used it, its effects were most remarkable. Sir Everard Home, who was himself a gouty subject, took it for seventeen months; and the result of his personal experience was, that it very quickly put a stop to the paroxysm. There being no known relation between the physiological effects of colchicum and the phenomena of gout, the action of this remedy is, in consequence, usually said to be specific.

3. In *rheumatism.*—The analogy existing between rheumatism and gout has led to the use of colchicum in the former disease, but the same success has not attended its use. Indeed, though I have employed colchicum extensively both in acute and chronic rheumatism, I have never been fully satisfied that any benefit resulted therefrom.

4. As a *sedative in inflammatory diseases* generally, colchicum was proposed by the late Mr. Haden, on account of its power of reducing the frequency of the pulse; but it has never been much employed.

5. In *calculous diseases.*—It is well known that in gout lithate of soda is frequently deposited at the joints, under the name of *chalk stones.* This fact seems to show that in gouty individuals there is a tendency to form an unnatural quantity of lithic acid; and you will therefore not be surprised to find that such individuals are very liable to have deposits of lithic acid in their urine, as are also their children. A knowledge of these facts suggests the use of colchicum in calculous complaints in which lithic acid is in excess.

6. In *worms* colchicum has occasionally been serviceable.

Administration.—The dose of colchicum in powder is from one grain to five.

The *Acetum Colchici* is made by digesting the sliced fresh cormi in diluted acetic acid, afterwards adding a little proof spirit to check decomposition. It is given in doses of from half a drachm to two drachms.

The *Vinum Colchici* is made, not with wine, but with diluted spirit, and the sliced fresh cormi. Its dose is from half a drachm to a drachm.

I believe druggists usually make both the above preparations with dried colchicum bulbs (cormi), and not fresh, as ordered in the Pharmacopœia.

In some Pharmacopœias there is a *Vinum Seminum Colchici*, prepared by digesting the seeds in wine. In the Dublin Pharmacopœia we have a *Tinctura Seminum Colchici.* As the activity of the seeds is said to reside in their outer coat, we are told that they ought not to be broken. It is probable, however, that the minute embryo is also impregnated with the active principle. The tincture of the seeds of the Dublin Pharmacopœia is given in doses of from ten minims to sixty.

In the London Pharmacopœia we have a *Spiritus Colchici Ammoniatus*, prepared by digesting colchicum seeds in aromatic spirit of ammonia. Its dose is from half a drachm to a drachm in some diluent or water. It is, I believe, little employed.

Colchicia, or *Colchicine.*

History.—A new principle was discovered by Geiger and Hesse in the seeds of colchicum; and they have given it the name of *Colchicine.*

Preparation.—Digest colchicum seeds in boiling alcohol; this dissolves a supersalt, which is to be precipitated by magnesia, and the precipitate treated with boiling alcohol. By evaporation, the alcoholic solution deposits colchicia.

Properties.—It is a crystallizable alkaline substance, without odour, but having a bitter taste. The hydrate of colchicia is feebly alkaline, but it neutralises acids, and forms crystallizable salts, having a bitter taste. It is soluble in water, and the solution precipitates the solution of chloride of platinum. Nitric acid colours colchicia first deep violet, passing into indigo blue, and quickly becoming first green and then yellow. Concentrated sulphuric acid colours it yellowish brown.

Characteristics.—Colchicia is distinguished from veratria by the following characteristics:—1st, it is soluble in water, whereas veratria is not; 2dly, colchicia is crystallizable, whereas pure veratria is not; 3dly, colchicia does not possess the acridity of veratria, and it differs from the latter in this, that when applied to the nose, it does not excite sneezing, whereas the least portion of veratria occasions a most convulsive sneezing.

Effects.—Colchicia is a powerful poison. One-tenth of a grain, dissolved in weak spirit, killed a young cat in about twelve hours. The symptoms were salivation, diarrhœa, vomiting, a staggering gait, cries, convulsions, and death. The stomach and intestines were violently inflamed, and had extravasated blood throughout their whole course.

Scitamineæ, or Zingiberaceæ.

In this family we have a distinct calyx and corolla,—the former three-lobed, the latter in two whorls of six segments. There is only one stamen, though originally three; but the two lateral ones become abortive. The anther is two-celled, opening longitudinally. The seeds are albuminous, the embryo being surrounded with a distinct membrane, termed the vitellus. The leaves are simple and sheathing, their veins diverging from the midrib at an acute angle.

Zingiber Officinale.

This plant is a native of the East Indies, but is now largely cultivated in the West India Islands. The part of the plant used is the underground stem, or rhizome, which is sold under the name of Ginger, and is termed in the Pharmacopœia the *radix zingiberis.* According to Dr. Wright, two sorts of Zingiber are cul-

tivated in Jamaica, one yielding the white, the other the black. In some works we are told that the distinction between black and white ginger depends on the mode of preparation only; but mere examination of the rhizome of commerce shows that this explanation is not sufficient, and renders Dr. Wright's statement probable.

The young shoots put forth every spring by the perennial rhizome, are used in the manufacture of the delicious *preserved ginger*. The rhizomes, when a year old, are dug up, and after being scalded in boiling water to prevent germination, and dried, are exported as ginger root. Black ginger, says Dr. Wright, has the most numerous and the largest roots (rhizomes), and only requires to be scalded and dried. The white ginger must be scalded in water, and the skin scraped off, then carefully dried.

When brought to this country the common kinds are bleached, by washing them with a solution of chloride of lime, and sometimes by exposing them to the vapour of sulphurous acid. Although this treatment improves the colour of the rhizome, it diminishes its activity.

In commerce many varieties of ginger are met with, designated by their colour and place of growth. Of white gingers we have the Jamaica (the finest), St. Vincent's, East India, and Barbadoes. Black ginger is principally brought from Jamaica, but a dark kind is also imported from Malabar.

Chemical composition.—The following is the composition of ginger rhizome according to Buchner:—

Pale yellow volatile oil	1·56
Acro-aromatic soft resin	3·60
Bitter extractive, soluble in alcohol	0·65
Acid and pungent extractive, insoluble in alcohol	10·50
Gum	12·05
Starch (analogous to bassorin)	19·75
Oxidized extractive, extracted by potash, (ulmin?)	26·00
Bassorin, extracted by potash	8·30
Woody fibre	8·00
Water	11·90
Ashes containing copper	
	102·31

Physiological effects.—Applied to the mucous membrane of the nose, it causes irritation and excites sneezing. Chewed, it acts as a sialogogue. When taken into the stomach, it operates as a stimulant, first to the alimentary canal, secondly to the body generally. It has been said to excite the genital organs, and to increase the energy of the cerebral functions.

Uses.—Ginger is used as condiment, and as a stimulant and carminitive. It is useful in relieving flatulency, in checking or preventing the nausea and griping of drastic purgatives, as senna, and as a flavouring ingredient.

Administration.—It enters into a considerable number of pharmaceutical compounds, but the only preparations which I think it necessary to notice, are the tincture and syrup. *Tinture of ginger* is prepared by digesting ginger in rectified spirit, and is given in doses of one or two drachms. The *Essence of ginger* of the shops is in fact nothing but a tincture: some, however, concentrate it by distilling off part of the spirit, so that the residuum in the retort contains a much larger relative proportion of active principle. The *syrup of ginger* is prepared by making an infusion of ginger, and then adding sugar, so as to make a syrup.

Cardamoms.

Under the name of Cardamoms, or Semina Cardamomi, are included various fruits of the family Scitamineæ, obtained not merely from different species, but even from different genera. I have specimens of the following: *Cardamomum minus; C. medium* (Guibourt); *C. longum; C. medium* (Roxburgh); *C. rotundum*; and *C. majus* (Nees).

1. *Elettaria Cardamomum.*

This is the plant called Alpinia cardamomum, by Roxburgh, Amomum repens, by Sonnerat, and Matonia cardamomum by Smith. It belongs to *Monandria Monogynia*, in the Linnean arrangement, and is a native of the mountainous part of the coast of Malabar.

The fruit constitutes the officinal cardamomum, the *Cardamomum minus.* Roxburgh says the capsule of this plant is of the size of a small nutmeg; consequently it is probable, as Nees suggests, that the Cardamomum minus of commerce is the dried unripe fruit, for it certainly does not admit of Roxburgh's comparison: indeed, if the latter writer did not specifically mention that this plant yielded the Cardamomum minus of the Pharmacopœia, I should, from his account of the fruit, have imagined it must have been another species. It is composed of three valves, and in the dried state is from four to six lines long, somewhat triangular but yet slightly rounded, longish, striped, and coriaceous. It contains many angular, irregular, brown or reddish brown seeds, having some resemblance to the cochineal of commerce, and a strong, somewhat terebinthaceous, taste and odour.

Composition.—This variety of cardamom has been analysed by Trommsdorf, and the following are his results:—

Colourless volatile oil	4·6
Fixed oil	10·4
Salt of potash (malate?) and a colouring matter	2·5
Fecula	3·0
Azotised mucilage, with phosphate of lime	1·8
Yellow colouring matter	0·4
Ligneous fibres	77·3
	100·0

The odour, taste, and aroma of the seeds, depend on the volatile oil. It is worthy of remark that no resinous matter is present.

There is a cardamom frequently met with in shops, which I believe is only a larger variety of this cardamom. It is called by Guibourt *Cardamomum medium*, but it must not be confounded with the Cardamomum medium of other writers. The capsule is from 7 to 9 lines long, and is smoother and paler than the Cardamomum minus, and the seeds are somewhat paler. A druggist to whom I shewed some specimens, termed them *long Malabar Cardamoms*.

2. *Elettaria Cardamomum medium.*

This is the Alpinia cardamomum medium of Roxburgh. It is a native of Coromandel and Sillet. Its fruit constitutes the *C. medium* of Roxburgh and Nees.

The following is Roxburgh's description of the fruit of this plant:—"Capsules pretty long pedicelled, ovate oblong, while fresh above an inch and a half long, and nearly one in diameter, somewhat three-lobed, each angle marked with a larger vertical wing, and two smaller on the flatter sides, between the large ones, three-celled." Now this answers very nearly to a cardamom which I have met with in English commerce, under the name of *semina cardamomi majores*, or *wild cardamoms*, from Calcutta; and which is identical with specimens which I have received from Professor Guibourt, under the name of "*Cardamome qui est exactement l'elettari de Rheede*, vol. xi. fig. 4 et 5." In the last edition of the "*Histoire Abregée*," Guibourt terms it "*Cardamome Fausse Maniguette.*" As met with in commerce the capsules have the following characters: their length is from 10 to 15 lines, their breadth from 5 to 7; their colour is reddish or brownish grey; they are rough and fibrous externally, and their shape somewhat similar to the pericarp of the cocoa nut. The seeds are similar to grains of Paradise (Amomum grana Paradisi).

3. *Elettaria* —— ?

In English commerce we meet with a cardamom termed *Ceylon*, or *wild cardamom*. Its length is an inch or an inch and a half, narrower at the extremities, slightly curved, longitudinally striped, its colour dirty brownish grey, its odour is more terebinthaceous than the other kinds. The seeds are oval and yellow. It is the *cardamomum longum officinarum* of Nees. It is probably obtained from some species of Elettaria.

4. *Amomum Cardamomum.*

This is supposed to yield the *Cardamomum rotundum* of the shops; the size and shape of which I should compare to the fruit of the croton tiglium. It is roundish ovate, with three rounded sides, yellowish or brownish white, and, when examined by a lens, shows the remains of hairs, the greater part of which have been probably rubbed off. The seeds are brown and angular.

5. *Amomum angustifolium?*

We sometimes meet with a cardamom two inches long, having the shape of a fig, and a brownish colour. I have only one specimen of it, but it corresponds with the *cardamomum majus* of Nees, and which he thinks may be the fruit of the *Amomum angustifolium*.

Effects and uses of cardamom seeds.—Cardamom seeds are exceedingly pleasant warm aromatics, and are used in medicine, partly on account of their flavour, and partly on account of their cordial and stimulant properties. They enter into a considerable number of pharmaceutical compounds, as adjuvants, but the only preparation which derives its name from them is the *tinctura cardamomi composita*.

A TABULAR VIEW OF THE ACTION OF REAGENTS ON URINE,

IN DIFFERENT DISEASES;

With Observations.

By R. H. Brett, M.R.C.S.L.

[Continued from p. 598.]

In all three of the instances of phosphatic urine contained in the tables, the individuals from whom they were obtained appeared to be suffering rather from dyspeptic symptoms, more or less acute, than from any primary or serious disturbance of the kidneys or urinary bladder. In two out of the three cases no alteration in the condition of the urine had been noticed by the parties themselves, until their attention had been

directed to it by particular inquiry. In one instance—viz. in the case of the individual who passed specimens 47 and 52, the unnatural state of the secretion was so manifest, that the party could not overlook it: it had existed for more than twelve months, during which time the urine could never be looked upon as healthy; sometimes, and by no means unfrequently either, being passed turbid, at other times only becoming turbid from phosphatic deposition after standing for some hours. From the appearance of the individual, a young man of about 25 years of age, there was nothing to lead to the suspicion of serious mischief going on in any important organ: the symptoms were those of marked derangement of the digestive functions, accompanied by a sense of uneasiness, not amounting to pain, in the lumbar regions, and occasionally following the course of the ureters and affecting the bladder. All these symptoms were aggravated by errors in diet, or mental disturbances. The pyrola umbellata rather augmented than diminished the phosphatic deposit in this case, rendering the urine, however, much darker in colour. The mineral acids, especially the muriatic, seemed to relieve the symptoms, and to a certain extent to diminish the quantity of the phosphatic deposition; but, although persevered in for some weeks, has not yet effected any permanent relief.

In the case from which specimens 59 and 62 were obtained, the deposit was phosphate of lime, no crystals of triple phosphate beginning to manifest themselves until the urine had remained exposed to the air for some hours, or even days. The most prominent symptoms in this case were severe bilious vomiting, constipation, and an extreme slowness of the pulse. The first specimen of urine from this patient, viz. that marked 57 in the tables, yielded no phosphatic salt by standing, but simply mucus; it became, however, turbid by heat, from a falling of phosphate of lime. Two or three days afterwards the attack of bilious vomiting came on, accompanied by the phosphatic deposit. No. 59 was a specimen of the urine obtained at that time. On the day following, although the urine still continued to yield the same deposit by standing, it was found capable of exerting an acid reaction on litmus paper. Two days afterwards specimen 62 was passed, and the quantity of phosphatic deposit was found to have diminished; the urine was also slightly acid. On the following day specimen 63 was passed; it was clear, nearly natural in colour, acid in its reaction, and not rendered turbid by heat. About a week after the last, specimen 73 was passed, and examined two or three days after emission; and it will be seen by reference to the tables, that not only had the urine acquired a strong acid reaction, but had actually begun to deposit crystals of brick-red-coloured lithic acid, mixed with little more than the healthy proportion of mucus: it was not, as might be expected, rendered turbid by heat, and its colour was fully as high as that of healthy urine.

As the unhealthy condition of the urinary secretion in this case appeared to be owing to disorder of the digestive organs, remedial agents were employed to correct the latter condition, without any regard to the state of the urine, considered in the abstract. This patient took the pil. hydr. in five-grain doses twice a day, followed shortly afterwards by the sulphate and carbonate of magnesia.

In the tables is placed the action of reagents on several specimens of diabetic urine, the greater number being obtained from individuals with that form termed diabetes mellitus; two or three from a patient with diabetes insipidus. With regard to the specific gravity of the first of these varieties, it ranged between 1·035 and 1·051. Diabetic urine is generally characterized by its clearness and pale colour; in the latter stages of the disease, however, and under certain circumstances which will be noticed presently, it becomes turbid shortly after, or even at the time of emission. This turbidity is depending upon a quantity of white matter (caseous matter) suspended through it: it occasionally contains small quantities of albumen.

Diabetic urine differs materially from healthy urine, as well as from other forms of diseased urine, in the effect produced by the same reagents: thus by reference to the tables, it will be found that those reagents which are capable of producing a turbidity, or even precipitate, in other specimens of urine, effect little or no change in diabetic urine,—at least in the earlier stages of the disease. Thus heat rarely produces any alteration; ammonia only the slightest troubling, from a deficiency of the earthy

phosphates. Lime water, when added to such urine, causes no marked alteration, from a deficiency of alkaline phosphates. Corrosive sublimate scarcely troubles it; sometimes, indeed, it does not produce the slightest alteration. The same thing may be said of alum; in the first case from a deficiency of alkaline phosphates, and also, most probably, of the extractive matters which exist in ordinary urine; in the other, from a deficiency of the alkaline phosphatic salts only; for I am not aware that any of the extractive matters existing in urine are capable of being precipitated by alum. Perchloride of iron, which, as far as I have hitherto observed, constantly produces a precipitate both in healthy as well as in the ordinary forms of diseased urine, rarely produces one in diabetic urine, except in the more advanced stages of the disease, when the patient has been for some time under treatment. It may here be observed, that the precipitate which perchloride of iron produces in most specimens of urine, from the action of the alkaline phosphatic salts, is soluble in an excess of the precipitant, as well as in nitric and muriatic acids.

It is not the presence of saccharine matter, but the deficiency of the alkaline phosphates, which is the cause of the inaction of this ferruginous preparation — viz. the perchloride of iron — on diabetic urine. This is shewn by dissolving sugar in healthy urine until its specific gravity is as high as ordinary diabetic urine; the addition of perchloride of iron causes a precipitate, as usual. A given bulk of diabetic urine is well known to yield, by the action of nitric acid, a smaller quantity of nitrate of urea than the same bulk of healthy urine; but, nevertheless, I bel eve that this principle may always be shewn to exist. Dr. Prout observes, that he has never met with a specimen in which it was entirely absent. The better way to detect its presence, appears, as far, at least, as my own experiments go, to evaporate the urine in question, not simply to a syrupy consistence, but until it ceases to give off aqueous vapour, care being taken not to char the extract. Nitric acid must then be added, of considerable strength, and in sufficient quantity, to render the whole fluid: in most cases crystals of nitrate of urea, almost entirely devoid of colour, begin to form in less than a minute; it sometimes, however, happens that a longer period is required for their production. Plunging the capsule containing the nitric acid and urinous extract into a freezing mixture will be found to facilitate their formation.

That there is a greater apparent deficiency of urea in diabetic urine than actually exists, I am disposed to think from the following experiment:—Two equal measures of healthy urine were taken, in one of which sufficient sugar had been dissolved to render its specific gravity as high as ordinary diabetic urine; both were evaporated to the consistence of a syrup; to both the same quantity of strong nitric acid was added. That one not containing sugar became converted almost into a solid mass of nitrate of urea; whereas the one which had been charged with saccharine matter began scantily to deposit crystals of the same salt only after the lapse of ten minutes or more. It is evident from this experiment that the sugar contained in the urine prevented the development of nitrate of urea, although it really existed in as large quantity as in the specimen which yielded such abundance of crystals.

It is commonly believed that urea speedily undergoes decomposition, when existing in small quantity only, in organic mixtures. This might be expected to hold good in the case of diabetic urine, which most probably contains but an inconsiderably quantity of urea even in a large bulk of the fluid; the following experiments, however, do not favour this idea:—

Some diabetic urine was examined on the 3d of January, and found to contain urea; it was then put aside, and exposed in an open vessel at the prevailing atmospheric temperature for nine days; until the 12th, indeed, of the same month: this principle was again, however, readily detected. It was then left untouched until the 4th of February, and again examined with the same success, although a period of more than one month had elapsed since the first examination. On the 16th of the same month it was once more examined for urea, and with success. It was not examined again until the 14th of March, and then the attempt to detect urea was unsuccessful.

During this time the urine had undergone some very decided changes: it had become more and more turbid, from a

quantity of white curdy-looking flocculi suspended through it; it possessed an unpleasant odour of sour milk, or new cheese; it was exceedingly acid, and was entirely deficient in saccharine matter. The white flakes just alluded to had an appearance not unlike coagulated caseous matter; and when collected on a filter, they evolved a peculiar cheese-like odour; when subjected to certain reagents, they behaved very like caseous matter which had undergone coagulation by pressure: these reactions will be alluded to more fully presently.

There are placed in the tables three specimens of urine obtained from a patient having all the more prominent symptoms of diabetes, saving the extreme emaciation which is so constantly met with, especially in the latter stages. The urine in question, although voided in very considerable quantities, differed materially from the ordinary forms of diabetic urine. It was almost entirely devoid of colour, having, when warm, scarcely a urinous odour; it faintly reddened litmus paper, and was of exceedingly low specific gravity, rarely reaching 1·006, more commonly 1·003, and sometimes barely exceeding that of distilled water. Those reagents which, under ordinary circumstances, produce decided changes in urine, scarcely at all affected it: when, however, it had been concentrated by evaporation, such reagents began to act, pointing out the presence of the same ingredients as are met with generally in urine; they could not, however, be detected before concentration, owing to the diluted condition of the fluid. Specimen 35 of this urine, specific gravity 1·006, yielded by evaporation only 32 grains of solid matter in the pint; whereas the same quantity of saccharine diabetic urine, of so low a specific gravity as 1·020, yields 382·4 grains. These 32 grains of solid matter yielded by incineration 9·6 grains of ash, so that the proportion of organic and volatile matter in one pint amounted only to 22·4 grains. In specimen 51, obtained from the same patient, the specific gravity being 1·005, the quantity of urea obtained from 1000 grains was only 1·57. Berzelius states that the same quantity of urine in a healthy condition contains 30 grains of urea. This urine did not appear to contain the slightest trace of saccharine matter.

It has been observed that diabetic urine, although for the most part strikingly clear when recently passed, and even remaining so for some hours, is, nevertheless, not unfrequently found turbid a short time after emission, and, occasionally, even at the time of emission. I have had occasion to observe this more particularly when the temperature is high, and in such cases it appears to enter speedily into fermentation, immense quantities of carbonic acid gas being generated, and forming, with a portion of the urine, an abundant froth on the surface of the fluid. The secretion possesses little or no urinous odour, but a mixed one by no means unpleasant—partaking partly of that of alcohol, and partly of that of milk. The fluid is exceedingly turbid, having an appearance analogous to that which would be produced by pouring some milk into pale urine; its specific gravity is somewhat lower than that form of diabetic urine which is clear and less prone to ferment, varying from 1030 to [illegible]: when recently voided it strongly reddens litmus paper; it frequently loses this property after having been kept for two or three days. When allowed to remain at rest for some hours in a small glass vessel, a deposit slowly takes place, of a white colour, and an appearance very analogous to finely divided curd of milk: I have not observed any thing like cream or oily matter upon the surface of such urine. The action of reagents on the filtered fluid is to be found in the tables; it is much the same as that exerted on the more ordinary forms of diabetic urine. There appears, however, to be less urea in the urine under consideration, than in those specimens of diabetic urine which do not so speedily undergo fermentation; saccharine matter appears to be in abundance—as, indeed, the simple fact of the immense evolution of carbonic acid sufficiently demonstrates. The mineral acids, when added to this urine, after boiling, produce a pink colouration, much less intense, however, than that occasionally observed in clear diabetic urine. When the deposit just spoken of is collected on a filter, it assumes the character of a somewhat opaque yellowish white curd: when mixed with alcohol and heated, it becomes more opaque, whiter in colour, loses much of its tenacity, becoming almost granular. The alcoholic fluid, in which this substance had been exhausted, was distilled: a clear fluid passed over, possessing a

peculiar odour; the residue in the retort was of a yellowish brown colour: when mixed with water and heated, an oily substance in small yellowish globules floated on the surface; when the fluid was cold this oily matter concreted into a solid butter-like looking substance. The insoluble white substance which had been exhausted by alcohol was then subjected, with caseous matter obtained from cheese, to the action of the same reagents, as follows:—

Action of Reagents on the Fluid obtained by Boiling the urinary Deposit and Caseum obtained from Cheese in Water, and Filtering.

Reagents.	Fluid obtained from Urinary Deposit.	Fluid obtained from Caseum.
Tincture galls	no evident change.	no evident change.
Corrosive sublimate	no alteration.	no alteration.
Subacetate of lead	a precipitate removed by a drop of nitric acid.	a troubling, removed by a drop of nitric acid.
Nitric acid	no alteration.	no alteration.
Acetic acid	no change.	no change.

Action of Reagents on the Fluid obtained by Boiling the urinary Deposit and Caseum in weak Acetic Acid, and Filtering.

Reagents.	Acetous Fluid from Caseum.	Acetous Fluid from Urinary Deposit.
Tincture galls	no change.	no change.
Corrosive sublimate	no change.	no change.
Subacetate of lead	a turbidity, removed by nitric acid.	a troubling, removed by nitric acid.
Ammonia	no change.	no change.
Caustic potass	no change.	no change.

1. Strong sulphuric acid in the cold produced no change when added either to caseum or the urinary deposit; when heated, a deep reddish brown solution was obtained in both cases; water when added caused no turbidity.

2. Strong nitric acid, when added to caseum and the urinary deposit, caused little or no alteration in the cold; when heated, a lemon yellow-coloured fluid was obtained, not perfectly transparent.

3. Strong muriatic acid, when added in the cold to caseum and the urinary deposit, produced no alteration; when boiled, the fluid in both cases became of a pink colour, but not entirely transparent.

4. A strong solution of caustic potass, when boiled upon caseum and the urinary deposit, did not seem to exert any solvent action over them, nor render them gelatinous or pulpy.

5. A strong solution of ammonia produced no more alteration than the caustic potass.

6. When ignited, both the caseum and urinary deposit inflamed, evolving a black smoke and an odour of burnt horn, leaving little or no ash.

7. When ignited in a glass tube both evolved ammonia, as shewn by the vapour which was given off reddening turmeric paper, and producing dense white clouds with muriatic acid.

A portion of urine, from which the greater part of the white substance had subsided by repose, was placed in a retort and distilled. The first portion which came over, equal in bulk to about one-third of the original fluid, was colourless and slightly turbid, from what appeared an oleaginous or creamy substance which was suspended in it in very minute quantities: it possessed an odour partly butyraceous and partly ammoniacal; it was evaporated to about one-half: ammoniacal fumes were given off, caustic potass was then added, and the whole evaporated to a very small bulk: the residue, upon cooling, yielded a pelicle of a greasy appearance and distinct greasy feel; upon the addition of sulphuric acid, somewhat diluted, a

distinct odour of butyric acid was evolved. The remainder of the fluid in the retort was then distilled until nothing more came over: the product, in appearance, was like that obtained by the first distillation; it, however, possessed neither an acid or alkaline reaction: when evaporated to about two-thirds it became slightly acid, and the addition of a solution of caustic potass caused an evolution of ammonia: the solution by evaporation yielded a saline pelicle similar to that above described, evolving the same odour when treated with sulphuric acid. It would seem, therefore, that the first product of distillation contained the butyric acid, combined with ammonia as well as free ammonia; the second product appeared to be a neutral combination of the same acid and ammonia. These experiments went to prove the existence of a butyraceous principle in the urine in question, similar to that existing in milk; it was probably, however, combined with ammonia, and which seemed to render it soluble. It was now wished to ascertain whether the curdy deposit itself would yield evidences of the presence of the same butyraceous principle by the action of sulphuric acid, after saponification with caustic potass. That it really did contain an oily matter, having a resemblance to the cream of milk, had already been shewn by the experiment in which it was boiled in alcohol: as, however, the evolution of the striking odour of butyric acid, after saponification, would render the nature of the oily substance unequivocal, the following experiment was made:—

Some urine, containing this white curdy substance in suspension, was allowed to remain at rest for some hours; the clearer and supernatant fluid was then decanted, and the remainder, containing the main bulk of the deposit, thrown upon a filter: the residue on the filter was well washed with distilled water, mixed with a solution of caustic potass, and boiled; when cool it was filtered, and the fluid thus obtained evaporated until a pellicle began to form on the surface by cooling: this saline compound was unctuous to the feel, and when treated with sulphuric acid evolved a strong odour of butyric acid. Hence it was clear, that the deposit which took place from the urine was a mixture of caseous matter, and fatty matter of the nature of cream of milk—the latter yielding butyric acid by saponification.

It may be here observed, that in order to have satisfactory evidence that the peculiar odour spoken of in the above experiments was identical with that evolved from butyric acid, cream of milk and butter were saponified with caustic potass, and the solution obtained by boiling them in water mixed after evaporation with sulphuric acid: the odour evolved was precisely like that described in the preceding experiments; it is exceedingly peculiar, not unlike that of rancid butter. In order to obtain the volatile acids in a free state, about half a pint of urine was strongly acidulated with sulphuric acid, diluted with about half its bulk of water; the mixture was then placed in a capacious retort, capable of holding a quart of fluid; the whole was then distilled until about two-thirds had passed over: this product was colourless, and upon its surface was observed a film of an unctuous appearance: it reddened litmus paper, and possessed a peculiar odour not at all ammoniacal. A solution of nitrate of silver, acidulated with nitric acid, was added to a portion of it; a slight milkiness was produced: another portion was heated in a glass tube: the vapour given off produced a dense cloud with ammonia. These experiments pointed out the presence of a small quantity of free muriatic acid in the product of distillation. The remainder of the distilled fluid was placed in a capsule, neutralized with caustic potass, and evaporated; during the first part of the evaporation only, an odour very like sulphuric ether was evolved; no ammoniacal odour was perceptible. When the evaporation had been continued until the fluid began to produce a film on the surface, it was put aside to cool; a saline mass, small in quantity, having an unctuous feel, was thus obtained; some sulphuric acid, diluted with an equal bulk of water, was added: a strong butyraceous odour, possessing also an acid pungency, more resembling acetic than muriatic acid, was evolved; but that the latter acid was most probably present also, was shewn from the white fumes produced by the approach of a rod charged with ammonia. The etherial odour spoken of, would seem to imply the existence of alcohol in the urine previously to the action of sulphuric acid upon it.

From what has been already stated, there can be no doubt entertained, I think, of the existence of caseous matter, as well as the butyraceous principle of milk, in the urine in question; and from experiments also made on several specimens of diabetic urine which had been kept for some time, there was every reason to believe that caseous matter had been thrown down, owing to some peculiar change which the urine underwent by exposure to the air, rendering it highly probable that the same, or something closely allied to the principles met with in milk, exist in all diabetic urine. Will this view of the nature of the secretion afford us any clue, in order to arrive at a knowledge of the peculiar condition of the system in diabetes? It is manifest, from the symptoms which are present in this disease, that the functions of digestion and assimilation are very imperfectly performed; witness the inordinate craving for food so frequently present, the pain or uneasy sensation about the stomach and bowels, and the extreme emaciation. Pathological investigations have hitherto failed to shew any morbid condition of the abdominal viscera, commensurate with the severe, and for the most part fatal, train of symptoms developed during life. Are those parts of the system specially engaged in chylifaction, and in sanguification, mainly at fault? Is the chyle formed in such cases for the most part of an unhealthy character, or is there a mere deficiency of healthy chyle? If the former state of things prevail, is it not possible that the digestive process shall be carried on in such an unhealthy manner, the secretions essential to the performance of that function, viz. the gastric, hepatic, pancreatic, &c., being disordered? that the ingesta, which in the healthy condition of the system, and under the vital as well as chemical influence of the fluids contained in the digestive apparatus, are converted in part into a peculiar fibro-albuminous fluid called chyle, yield only an imperfect production, having more of the character of milk than chyle? That there is a considerable chemical difference between these fluids, experiment has amply demonstrated. I shall not just now enter into the arguments in favour of this distinction, as I shall have to refer to this subject when speaking of albuminous urine; and as this imperfect fluid may be considered as inadequate for the production of healthy blood, and consequently an ineffective agent in nutrition, it is removed from the system by the urinary outlets.

With respect to the saccharine matter so abundant in most specimens of diabetic urine, I am induced to look upon it rather as the result of an unhealthy process of digestion, than a mere secretion from the kidneys themselves; nor are we without some physiological facts which seem to favour this hypothesis. Thus in the beautiful and elaborate experiments instituted by Tiedeman and Gmelin* on digestion, it is clearly shewn that certain ingesta are capable of being converted by the powers of digestion into sugar, as well as into a substance having a close resemblance to gum. These experimenters fed a dog for some days with potato starch; they afterwards examined the contents of the stomach, small intestine, and cæcum, and satisfied themselves that the fæcula had become changed into sugar and gum. They also detected sugar in the chyle, blood, and urine. These facts not only, then, prove that certain ingesta may be converted by the operations of digestion into saccharine matter, but also that such saccharine matter may partly at least be removed from the system by the urinary channels. And it does not appear to me to be running too wide of fair analogical reasoning, to assume that in the human subject, under certain hitherto unexplicable states of the system, particularly of the digestive organs, an excess of saccharine matter is formed, and which being unfit for the purposes of the animal economy, is thrown off from the system, together with the urinary secretion.

Although not put down in the tables, it may be here observed, that most specimens of diabetic urine of the saccharine character became of a fine pink colour when treated with a few drops of either of the mineral acids; and this phenomenon is more readily perceived upon applying heat to the fluid. It sometimes, nevertheless, happens that the pink colouration is not produced until a considerable quantity of the mineral acid is added. The following questions naturally suggested themselves. What is the cause of this peculiar development of colour? Does it

* Tiedemann et Gmelin : recherches expérimentales, &c., sur la digestion, première partie, p. 201, et seq.

occur only in certain specimens of urine in particular diseases, or is it common to all urine? To determine these questions it became necessary to operate upon several specimens of healthy urine, as well as upon numerous specimens in different diseases.

1st. It was found that when a few drops of the sulphuric, muriatic, or nitric acids, were added in the cold to about 60 drops of healthy urine, a deepening of colour was produced, but no distinct pink colour struck. Upon applying heat to the fluid, it assumed a very slight pink tinge; when the mineral acids were added in larger quantity, a more distinct pink colour was obtained, sometimes without, but more frequently with, the application of heat for a short time. The sulphuric and muriatic acids seemed to answer best in effecting this peculiar change of colour, that produced by nitric acid commonly passing into yellowish brown when heat was continued for a very short period. Caustic alkali added to urine thus rendered pink, so as to supersaturate the acid, did not remove the colour.

2ndly. In those specimens of urine which yielded a deposit of the lithates, the same phenomena were frequently, although not constantly, observed. I have not yet, however, had sufficient opportunity of determining whether this peculiar colouration takes place more constantly in urine yielding a deposit of the pale, or of the more deeply coloured lithates.

3d. Phosphatic urine was also found occasionally to yield the pink colour, with the mineral acids.

4th. Those forms of urine from which a substance like mucus is precipitated by boiling, were pretty constantly coloured by the mineral acids.

5th. Albuminous urine appeared also to be very frequently, if not constantly, coloured by the same acids.

6th. Of all the specimens of urine hitherto examined, those which are characterized by their high specific gravity from an excess of urea, seemed to undergo the greatest degree of colouraation from the action of the mineral acids.

From the above data, it would seem to follow that the peculiar principle, whatever it may be, capable of producing a pink colour with the mineral acids, exists very frequently in healthy as well as in diseased urine. It is not impossible, however, that it may be present in all urine, without any exception, although in some cases in too small a quantity to yield a distinct pink colour with the mineral acids. The next question to be disposed of is—what is the cause of this pink colouration? I was at one time disposed to think that the pink colour, occasionally observed to take place upon the addition of nitric acid to urine, was owing to the formation of purpurate of ammonia, by the reaction of the acid upon the lithic acid or lithates contained in that fluid. But the following experiment contradicted this notion.

Some granular lithic acid separated from the urine by filtration was diffused through distilled water in one test tube, and some lithate deposit was placed under the same circumstances in another; heat was applied to both, and an excess of nitric acid added; no pink colour, however, was produced, and it was only after the fluids had been evaporated to dryness, that the beautiful colour of purpurate of ammonia was obtained. Now in those specimens of urine which afford a pink colour with nitric acid, the colour is struck instantly, or at least as soon as heat is applied. Besides, urine which is thus acted upon by nitric acid yields the same colour with muriatic or sulphuric acid, neither of which can produce purpurate of ammonia by their action on lithic acid. As muriatic acid is capable of producing a pink colour when boiled, on albumen, or when added to a moderately concentrated albuminous fluid and boiled, it was thought that the peculiar pink colour imparted to certain specimens when treated with this acid, especially upon the application of heat, was depending upon an albuminous impregnation, more particularly as albuminous urine almost always assumes this colour when treated with muriatic acid. But experiments on healthy urine known not to contain any albumen clearly shewed that although this might explain the cause of the colouration in question, as far as related to albuminous urine, still that some other must be looked for in those cases where the change took place in urine decidedly not albuminous.

[To be continued.]

MEDICO-STATISTICAL

REPORT FROM THE MARYLEBONE INFIRMARY,

For the Six Months ending June 1, 1836.

BY

JOHN CLENDINNING, A.M. & M.D.

My last report brought the account of admissions, discharges, and deaths, down to 1st December last. There were then about 205 patients altogether in the house, of which 113 were physicians' patients. The "orders" for medical relief issued since have been 2009, of which nearly two-thirds were entered on the out-door lists of the Assistant House-Surgeons, or admitted into the surgeons' wards. Of the remainder were admitted into the physicians' wards, a total of 718, exclusive of "casual" and "itch" patients, of whom I take no account. Of those 718 alone I purpose taking notice at present. On several former occasions I included all the cases, out-door as well as in-door; and subsequently I included the in-door surgical cases with the medical, excluding all the out-door practice. The omission of the out-door cases in the first instance, and of the in-door surgical also at present, is owing to my having no sufficient information as to the ages, or dates of admission and discharge, or death, of the former, and no personal cognizance of either; and to believing that bare lists of names of diseases are of little value.

On this change of plan, however insignificant in itself, it is necessary to observe that it will make a great difference in the *quotients* of mortality and daily population, as also in the ratio of deaths to sick time, of course; and that the apparently disadvantageous contrast in regard to average mortality in particular, between this report and the last, is owing wholly to the exclusion of the surgical cases, whose number in the Infirmary is always considerable, and whose mortality there, as every where else, averages much less than that of medical cases, as I have sufficiently, I believe, explained, and proved numerically and otherwise, in the last report just referred to*.

The greatest number of physicians' patients in the house at one time, during the six months, was 149, which occurred January 22; and the least was 94, which was the 4th of December; and the average daily population was nearly 126.

The distribution of the admissions over the months was the following:—January, 154; May, 133; April, 110; December, 108; February, 101; and March, 99.

Remarks on the Table of Ages and Deaths.

In my report for the year ending December 1, last, I attributed much of the difference between the mortality of the Infirmary and that of many other hospitals, to the circumstance that most of the latter exclude altogether, or but partially admit, young children and aged persons, while the Infirmary admits all ages alike. At that time I was not in possession of any hospital reports proving the reality of what I well knew, that in our general hospitals few or none at either extreme of life are to be met with, and that the great majority are from puberty to 50 or 55, consequently within those limits of age in which organic vitality is most energetic and tenacious, and mortality under all circumstances lowest. Since then I have found in a parliamentary paper of the present year returns which enable me to contrast the circumstances of the Marylebone Infirmary population, with regard to age, with those of the patients of two other great establishments, one a provincial, and the other a London hospital.

For the last six months the ages of the Infirmary patients have been, as usual, spread uniformly, according to the natural course of disease, over the whole of life,—the middle periods, or from 10 to 60, yielding about half of the whole sickness, while the more susceptible periods of infancy, childhood, and age, have yielded, as they might be expected to do, a proportion of sickness relatively to their numerical amount much larger; there was, in fact, about 25 per cent. of the whole under 10, and an equal proportion above 60 years of age; so that, of the whole of the admissions, a full half had either not reached 10, or had passed 60. But in the hospital reports in the parliamentary paper alluded to we find a very different result. (See page 643.)

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* MEDICAL GAZETTE, vol. xvii. p. 979, *et seq.*

Table of Admissions into the Physicians' Wards of the St. Marylebone Infirmary, from Dec. 1, 1835, to June 1, 1836.

	Male.	Female.
Abscess	2	0
Atrophy	0	1
Attempted suicide	1	0
Apoplexy	9	14
Asthma	0	2
Cachexia	1	1
Cholera	0	1
Congestio cerebri	2	0
Contusio	1	3
Consumption	42	38
Cut throat	1	0
Cynanche	1	2
Delirium	0	1
Delirium tremens	5	1
Diarrhœa	5	4
Dropsy	0	3
Dyspepsia	2	0
Dysentery	2	0
Epilepsy	5	1
Erysipelas	4	5
Erythema nodos	0	1
Fatuitas	1	0
Fever	50	52
Fractura costæ	1	0
Fungus hæmatodes	0	1
Gastritis	0	3
Gastro-enterite	2	3
Hæmorrhage	0	1
Hæmorrhoids	1	0
Hæmoptysis	3	1
Hydrocephalus acutus	1	1
Hypochondriasis	1	0
Icterus	1	1
Impetigo	0	1
Intoxication	1	1
Inflammations of pleura and lungs	26	11
Inflammation of bowels and peritoneum	1	2
Inflamed knee	0	2
Insanity	17	9
Laryngitis	0	3
Meningitis	0	4
Menorrhagia	0	1
Moribund	0	1
Morbus uteri, &c.	0	5
chron. cerebri	8	12
chron. cordis	34	25
spinæ	0	1
ventriculi	0	2
Neuralgia	1	1
Obstipatio	3	1
Old age	1	2
Ophthalmia	1	1
Periostitis	0	1
Pertussis	4	4
Pericarditis	1	0
Ptyalism	1	2
Pulmonary catarrh	43	48
Poisoning	0	1
Phlebitis	0	2
Palsy	0	3
Puerperal fever	0	1
Pleuritis	2	4
Rheumatism	23	29
Rubeola	21	33
Scarlatina maligna	2	2
Sciatica	2	1
Scrofula	1	0
Starvation	0	1
Syphilis	2	1
Slough of hip	0	1
Ulcers	1	1
Varicella	4	0
	705	
Diseases not recorded	13	
Total	718	

Table of Deaths in the Physicians' Wards of the St. Marylebone Infirmary, from 1st December, 1835, to 1st June, 1836.

	Male.	Female.
Abscess of liver and pericarditis	0	1
Abscess of kidney	0	1
Apoplexy	9	6
Aneurism of aorta	1	1
Asthma	1	0
Atrophy	3	0
Bronchitis	0	2
Cancer of uterus	0	2
Consumption	29	26
Chronic pleurisy	1	0
Chronic disease of heart	16	14
Croup	0	1
Convulsions	1	1
Delirium tremens	1	0
Diseased brain	5	4
——— rectum and vagina	0	1
——— stomach	0	2
Diarrhœa	0	1
Dropsy	1	3
Dysentery	1	0
Empyema	1	0
Erysipelas of face	1	0
Fever (typhus)	3	0
Gangrene of brain	0	1
Hydrocephalus acutus	1	0
Inflammation of brain	2	3
——— bowels and peritoneum	0	1
——— heart and pericard.	0	1
——— lungs and pleura	14	10
Marasmus and mesenteric disease	1	2
Measles	1	1
Old age	1	0
Tumor of abdomen	0	2
——— of brain	1	1
Ulceration of intestines	1	0
——— œsophagus	0	1

Total 185

Table of Days of Sickness, and Average Stay, in the Physicians' Wards of the St. Marylebone Infirmary, from 1*st December*, 1835, *to* 1*st June*, 1836.

Days	Cases	Days	Cases
5 days and under	121 cases	From 40 to 50 days	39 cases
From 5 to 10 days	84 —	— 50 to 60	20 —
— 10 to 15	123 —	— 60 to 70	9 —
— 15 to 20	80 —	— 70 to 90	24 —
— 20 to 25	77 —	— 90 to 181 (the longest stay)	32 —
— 25 to 30	40 —		
— 30 to 40	69 —		

Total of sick days 17,571; which ÷185 deaths, gives about 95 sick days to each death; and divided by the number of cases admitted, gives $21\frac{1}{2}$ days average stay.

Ages of Patients in the Physicians' Wards of the St. Marylebone Infirmary, arranged in quinquennial periods, from 1*st December*, 1835, *to* 1*st June*, 1836.

Patients.	Ages.	Deaths.	Patients.	Ages.	Deaths.
114	under 5 years	32	41	under 50	5
56	„ 10	4	33	„ 55	9
14	„ 15	4	47	„ 60	24
61	„ 20	3	46	„ 65	13
47	„ 25	8	44	„ 70	16
50	„ 30	7	45	above 70	23
45	„ 35	45	4,	ages not recorded.	
37	„ 40	7			
34	„ 45	15			

Total admited 718

[Continued from page 641.]

In a grand total of about 16,000 cases admitted into the Manchester Infirmary between June 25, 1827, and the same date, 1834, nearly eight-ninths ranged from 10 to 60, there being but one-eighteenth of the whole under 11, and one-nineteenth 60 and upwards. From the same authority it appears, that of a grand total of near 14,000 cases, admitted into the London Hospital for the six years preceding 1834, the different ages of life were found in pretty nearly the same relative proportions as in the Manchester report: nearly eight-ninths of the patients were of ages between 10 and 60; one-seventeenth of the whole only being 10 and under, and one-eighteenth 60 and upwards.

Manchester Infirmary, for Six Years, ending in 1834 : *Ages of* 15,293 *Patients, in decennial periods.*

Ages	0 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90
Patients ..	919	2733	4019	3237	2293	1243	576	231	42

Or, 1-18th under 10, and 1-19th over 60 years of age.

London Hospital, for Five Years, ending with 1833 : *Ages of* 13,811 *Patients, in decennial periods.*

Ages	0 to 10	10 to 20	20 to 40	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90
Patients ..	824	2343	3583	3029	2107	1173	506	208	38

Or, 1-18th only over 60, and 1-17th nearly under 11 years of age.

From these facts it appears, that while the Marylebone Infirmary derives half its population from the years below 11 and above 60, the general hospitals receive but one-ninth of their patients from those ages, the remaining eight-ninths being furnished them by the intermediate period. Add to this, that a very large proportion of the youthful patients of the Marylebone Infirmary are

infants of but a few weeks or months old —a class of applicants not admitted into any general hospital that I am acquainted with. With such striking difference between the ages of the patients of the parochial and general hospitals (and excluding from consideration other causes influencing the annual mortality of hospitals, such as nature of cases, whether surgical mainly, or medical; peculiarities of localities, trades, &c. &c.), a very decided difference must be expected in the comparative results of treatment in those two classes of establishments, and with unquestionable justice, a much larger mortality may be expected in the one case, and a much smaller in the other. Of the classes most susceptible of disease, and least tenacious of life, namely young children and aged persons, the mortality enormously exceeds that of persons between 12 and 14, and 50 or 55. This might be illustrated in a very striking manner from the observations of Mr. Finlaison, contained in his Report on Government Life-Annuitants, 1829, of which Dr. Southwood Smith has given an interesting summary in his Philosophy of Health. But I prefer using another parliamentary paper of 1836, by Mr. Rickman, as simpler and more compendious, yet sufficient for my purpose. From a mortality table, containing the ages of 4,000,000 persons of both sexes buried in England and Wales during 18 years, ending with 1830, it appears that there died annually of every thousand that entered upon each of the following ages, the proportions placed opposite the ages respectively.

	Ages.	Mortality per 1000 per annum.
(1.)	under 5	345
(2.)	.... 5 to 10 ..	65
(3.)	.... 10 to 15 ..	43
(4.)	.... 15 to 20 ..	59
(5.)	.... 20 to 30 ..	142
(6.)	.... 30 to 40 ..	142
(7.)	.... 40 to 50 ..	162
(8.)	.... 50 to 60 ..	206
(9.)	.... 60 to 70 ..	339
(10.)	.... 70 to 80 ..	587

So that the annual mortality of the period 5 years and under, (marked No. 1.) is to the mortality of the

2d period as	5 to 1
of the 3d period as	8 to 1
of the 4th period as	6 to 1
of the 5th period as	2·5 to 1
of the 6th period as	2·5 to 1
of the 7th period as	2·12 to 1

and it is only amongst persons turned of 60 that the annual mortality approaches to equality with that of the first five years of life, while at ages still more advanced, the mortality increases rapidly to 60, 70, 80, 90, and 95 per cent. per annum. Now since every well-ascertained cause and form of death, except perhaps the rarest, viz. pure old age, has a name and place in our nosologies, medical or surgical, it follows that the preceding table of national mortality must be virtually equivalent to an hospital return on a vast scale. But we are not altogether depending on reasoning to prove the applicability of the statistics of life as modified by age to the results of professional experience. Mr. Finlaison, who, in opposition to Dr. Price and weighty subsequent authorities, in 1825 denied that sickness, like mortality, had fixed and definable relations to age, published to his honor I notice the retractation, in 1829; a very valuable table deduced from accurate observations on a large scale, partly Scottish, partly English, from which it appears that—

Ages.
Between 20 and 35, the average annual sickness is 1 week.
That at 55 it rises to 14 days per annum.
That at 60 it attains to 21 days —
That at 65 ———— 40 days —
That at 70 and upwards, 116 days —

So that the liability to actual sickness grows after puberty with years, while on the other hand, there are some facts in medical records that shew that mortality follows the same law amongst the hundreds that inhabit our hospitals, as amongst the millions of our general population. For example, in the interesting work of Dr. Smith's, above named, we are informed that from an observation, including nearly 6,000 cases of fever, Mr. Finlaison ascertained that the risk to life from that disease varies with the age of the subject, being less in the younger, and greater in the older ages, being, for example—

Twice as great at 31 as at 11 years of age;
Twice as great at 41 as at 21 —
Five times as great at 61 as at 11, and
Four times as great above 65 as at 21.

And my own data furnish evidence to the importance of age in medical statistics. During the 18 months ending June 1 last, for example, there was a total of admissions into the infirmary of

infants under 3 years of age, amounting to 130; and the deaths of the same class in the same period amounted to 65, thus distributed; their predominant diseases were (I may add) pneumonia and marasmus, the former especially under 12 months :—

Under 12 months,	60 admitted,	47 died.
From 12 to 24 months,	36	12 —
From 2 to 3 years	34	6* —

Now the differences between the mortalities of the three ages are strongly marked, and will, I conceive, admit of but one satisfactory explanation. The diet, regimen, and medication, were governed by the same rules in all three. The domestic accommodations were the same, and the diseases were pretty nearly the same, with, however, a preponderance of pneumonia amongst the first set. There remains, therefore, probably only the difference of age to account for the difference of mortality obtaining between the groups.

To the same conclusion there is evidence in the tables of the present report, viz. from a comparison of the first and third columns of the table of ages. Taking of the first ten quinquennial periods, such as contain fifty cases and upwards, as probably large enough to yield, in some degree, accurate results, we find that the first period gives a mortality of $\frac{114}{32} = 1$ in 3·5 nearly; the second period a mortality of $\frac{56}{4} = 1$ in 14; the fourth period a mortality $= \frac{61}{3}$, or 1 in 20 nearly; and the sixth period a mortality $= \frac{50}{7}$, or 1 in 7 nearly; and if we add together the amounts of all the periods above the tenth—viz. the last five periods—as too small singly for bases of calculation, we have a mortality of 215 divided by 85 = 1 in 2·5, nearly. In like manner the tables of ages of the discharges and deaths of my report for 1835; but more regularly, from embracing larger masses.

	Ages.	Admissions.	Deaths.	Mortality.
Year ending December 1, 1835.	Under 10	412	35	1-12th nearly.
	10 to 20	426	16	1-27th nearly.
	20 to 30	216	33	1 7th nearly.
	30 to 40	193	37	1-5th nearly.
	40 to 50	160	31	1-5th nearly.
	50 to 60	180	51	1 in 3·60.
	60 and upwards	313	102	1 in 3.

And this would be more striking had it been given in quinquennial periods.

Age is therefore an element of great importance in medico-statistical inquiries, as furnishing on the large scale a convenient measure, in health and sickness alike, of the tenacity or fragility of life, and consequently indirectly of the susceptibility of cure and efficiency of treatment; a measure for which there is no substitute, and without which there is, at least in some directions, no use in attempting to proceed.

I should apologize for devoting so much valuable space to this matter, were I not aware of the little attention paid in this country to statistics, and my liability to misapprehension by many otherwise abundantly intelligent.

Remarks on the Table of Admissions.

In the preceding table of admissions there are recorded unusual numbers of two of the most deadly species of diseases—viz. *phthisis* and *morb. chron. cordis.* In the corresponding table, for the year ending December 1, 1835, there were entered 132 of the former, and 50 of the latter; and in my comments on that table, I stated that the results of 1835 exceeded very much the average of the five years ending January 1, 1836, with respect to the diseases in question. But the results of the last six months, probably owing to their having been winter and spring months, far exceed the ratios of the preceding

* Mr. Lee mentions (Observations on the Medical Institutions of France, &c. Lond. 1835), that three-fourths of the infants received into the Infirmary of the *Enfans trouvés* of Paris, die there. The Infirmary, he informs us, at the same time, is clean and airy: the diseases are of course various; no doubt the severer diseases, as for example, *pneumonia*, give a still larger mortality. From the last official returns from Paris that I have seen, viz. those for 1833 and 34, now before me, it appears that the mortality of the whole of the *Enfans trouvés* of those years, in town and country (*en dépôt ou à la campagne*) was nearly 1 in 4, or 2578 out of 10796.

twelve, and would, if continued, yield annual totals of 160 phthisis, and 118 morb. chron. cordis; with, of course, proportionally increased mortalities. Whether these items have so increased apparently only, and at the expence of others, owing to more minute examination of the thoracic viscera, or have been increased substantively by incidental influences favouring such diseases in Marylebone, or owe their increase to some of those fluctuations to which all results deduced from small masses of data are liable, I am unprepared to say.

Measles.—Under the head Rubeola there is a large entry in the table, owing to an irruption of measles in the schools of the Workhouse in the winter, and the disease still prevails, but in a declining state apparently. The first five cases occurred in February; in March none happened; but in April there occurred three; and in May they increased rapidly, amounting, by the close of that month, to 54 altogether. Few of the cases proved severe, and there were but two deaths, both from pneumonia, occasioned, apparently, by the measles. The thoracic viscera were of course the chief objects of anxiety, and were frequently examined. In several instances we were sensible of an alteration in the sound of respiration before the appearance of the irruption on the skin; perhaps as much as a day before the exanthema could be identified. There was, in some instances, a loudness and roughness in the murmur, indicating catarrh at hand, or beginning. In several there was likewise gastro-enteritic irritation, requiring local antiphlogistics.

Mortality of pneumonia.—There has been a large mortality during the half year from pneumonia and pleuro-pneumonia,—diseases which, next after phthisis and morb. chron. cord., are the most fatal that frequent the Infirmary. The admissions from the former diseases, during the period, amounted to 43, of which 23 were fatal, or more than one half. Some that had been entered in the usual way, soon after admission, in the official journals as pneumonia or pleuro-pneumonia, proved eventually to have been phthisis, masked by incidental pulmonic inflammations. Several were brought in moribund, or in a hopeless state. By both means the mortality was augmented. But neither of those circumstances is peculiar to the Infirmary; and we must lay to the account of age principally the difference between our mortality from pulmonic inflammation and that of other civil hospitals. This appears inevitable from an inspection of the following table, of the ages of the subjects, with the results of treatment.

Ages.	Admissions.	Discharges	Deaths.
Under 5 years	14	4	10
5 to 10......	2	2	0
10 — 15......	1	1	0
15 — 20......	4	3	1
20 — 30......	8	5	3
30 — 40......	4	3	1
40 — 50......	2	1	1
50 — 60......	3	1	2
60 — 70......	1	0	1
Upwards of 70	4	0	4

NOTE.—Of those under 6 years of age (viz. 14), twelve were but 12 months or under, of whom eight died.

The treatment of those cases was conducted on the most generally received views as to their pathology, and embraced the remedies most approved. That our mortality from pulmonic inflammations, therefore, exceeds that of the hospitals that exclude wholly or in great part those classes on whom sickness falls most frequently and most fatally,—viz. infancy and age,—there can be no doubt; but I have no sufficient data, if any such exist, which appears doubtful, for determining the amount of the difference.

Before quitting the subject, I may observe, that I think it very probable that inattention to this influence of age on the results of treatment has much to do with the wide differences of opinion manifested recently in the discussions of the Académie de Médecine (Gaz. Méd. de Paris, tome iii. Nos. 48 and 49). The debate arose out of the following startling statement, contained in a report by M. Capuron (on a medico-statistical paper of M. Morlanne's, of Metz), who seems to be what, without disrespect to the eloquent *rapporteur*, I may call an *exaltado* of the Broussais school:—" D'après les progrès de l'art depuis une vingtaine d'années, il est presque impossible ou difficile de concevoir la mort dans les maladies aiguës, si ce n'est comme une exception, ou comme un phénomène rare; à moins qu'on ne les attaque trop tard, ou avec

des moyens fort inférieurs à leur violence." In support of M. Capuron, M. Bouillaud stated, that at the Hôpital Cochin the mortality of pneumonias had been for several years 1 in 4; at Hôtel Dieu, in the services of MM. Chomel and Gueneau de Mussy, 1 in 3; while his own losses, by the method of bleeding, *coup sur coup*, were about 1-8th, or less. And in the continuation of the debate on the 2d of last December, M. Bouillaud stated, that MM. Louis and Laennec lost 2-5ths by the same diseases; and adds that on 202 cases treated by him in four years preceding, he lost but 12, or 1 in $8\frac{1}{2}$. And M. Castel outdid even the brilliant successes of M. Bouillaud, having had, of 83 *fluxions de poitrine*, only three deaths. Of course such differences of result cannot be accounted for by differences of skill in diagnosis or treatment. The statement of M. Louis, that although he had not materially changed his method of cure, he had for five years had a mortality from pulmonic inflammation greatly less than previously (less than 1 in 8, instead of 1-3d or 1-4th), would of itself satisfy most minds that we must look beyond modes of treatment for an explanation; and may with considerable probability refer the differences of result more or less to differences in the condition of the subjects with respect to age. To this, however, the debate contains no allusion that I have observed; and the only suggestion offered in explanation, is differences of constitution in the seasons, &c.—a supposition scarcely admissible, as pointed out by M. Bouillaud.

Iodine in Rheumatism.

Since my last notice of the use of hydriodate of potass in rheumatism, I have had numerous opportunities of verifying every statement that I have published in the Gazette respecting the utility of that remedy in the more chronic forms of the disease, about the joints especially, but generally, also, in the fibrous structures; being aware, however, from various sources of information, that the remedy is being extensively employed in London and elsewhere, as by Dr. Elliotson in the North London, Dr. Macleod at St. George's, Dr. Roe at Westminster, and Dr. Williams at St Thomas's, Hospitals, at which latter, indeed, the antiphlogistic powers of the salt may be said to have been first discovered or promulgated, at least in this country, I think it would be quite unnecessary to give any cases corroborative of my previous statements. This only practical observation I would make, believing that attention to it will prevent occasional disappointment in the early treatment of rheumatism; it is not uncommon to meet with persons who are suffering from a chronic form of the disease, in whom the febrile stage has passed or has never existed, having pulse, tongue, heat of surface normal or nearly so, but cachectic notwithstanding, feeble, sometimes wasted, generally pale or sallow, with tenderness or swelling of one or more joints of long standing. Such subjects are not well fitted for an hospital in a large town, and are slowly and difficultly cured in it. I am not at present aware of any mode of treating such cases equally successful with that by a combination of iodine and iron, aided, as soon as pressure can be borne, by rollers (of flannel, if the weather permit) enveloping the whole of the enfeebled limb. Other remedies, leeches, blisters, fomentations, &c. are useful as occasional auxiliaries, but a medication containing iron and iodine in a sufficient quantity, in no matter what form, provided it suit the stomach, is the principal remedy that I possess in such cases, and I would strongly recommend its use to those who have not yet tried it. The pallid, and in some measure exsanguious cachexia, combined with local tenderness and swelling, and weakness of the parts affected, to which rheumatics advanced in years or of scrofulous or leucophlegmatic habit, and those habitually deficient in physical comforts, are liable, has, in every instance that I have been able to follow up the ferro-iodic treatment, received more or less benefit from it, and generally been speedily relieved, and frequently completely cured.

There is one other observation connected with this subject which I wish to offer, relating to the detection of the iodine on the urine. In a recent very interesting opusculum on Dropsy, by Dr. Osborne, of Dublin, the learned author, states, that he has never succeeded, if I rightly recollect, in obtaining evidence of the presence of iodine in the urine of persons under the influence of hydriodate or iodide of potassium by means of the starch test. Being well aware of Dr. Osborne's chemical skill, I have, since

perusing his work, repeatedly verified the statements which I communicated now a year or more since to the MEDICAL GAZETTE; and have in most instances, though not in all, obtained the iodide of starch with facility by the simple process described in the communication alluded to. I have since that time succeeded in detecting iodine in the urine at various intervals, from 20 minutes after the first dose, up to 4 days or rather 80 hours after the last.

A New Method of facilitating Diagnosis in certain cases.

In the mechanical mode of investigating diseases of the chest, there are certain difficulties and sources of error, arising partly from irregularities in form and variations in density, size, and position of the mutually contiguous viscera of the chest and abdomen—partly from the irregular form and varying level of the partition of muscle and tendon that separates those cavities; and these sources of difficulty and error are not as generally well understood as their importance appears to merit. If the cavities just named were separated from each other by a plane, varying in shape but little, and forming a known angle with the axis of the body, it is obvious that the respiratory murmur and other pulmonary physical signs could be expected to be perceptible no where below the level of such uniform plane; also that the sounds, &c. arising from percussion must differ at opposite sides of that line; that, for example, a liver unusually high under the ribs would not be mistaken for a hepatized lung, or a copious pleuritic effusion, [illegible] *vice versâ;* nor would an inflated stomach appear to give to the left side of the thorax the resonance of *pulmonary* emphysema, with a natural or hepatized condition of the lower edge of the left lung. These things would, on that supposition, be clear enough without experimental trouble; but owing to the obliquities of insertion and variations in plane of the diaphragm, there is often some caution and trouble required, to escape erroneous conclusions respecting the condition of the mutually contiguous viscera of the chest and abdomen. Some of the best means of ascertaining the truth, with regard to those viscera, are now generally acknowledged to be auscultation and percussion; and their value it would be difficult to exaggerate. Yet, with even those admirable aids, we are sometimes at fault; more especially when obliged to pass in review, in the course of an hour or two, a large number of cases, as in official practice frequently happens. Under such circumstances, every thing that promises saving of time and labour is of importance, and every practicable short cut has its value. As a provision against such cases more especially, but also as a contribution towards facilitating the diagnosis in general of pectoral and abdominal diseases, my friend, Dr. EDWIN HARRISON, has drawn my attention to certain characters in the external form of the thorax, from a little attention to which may frequently be detected, by the practised hand or eye, with great facility, the mutual relations of the viscera on either side of the diaphragm. These are certain depressions, more or less obvious, on one or other side of the thorax, more particularly in the antero-posterior and transverse mesial planes of the trunk, viz. about the root of the xiphoid cartilage, and upon the dorsal vertebræ on the opposite surface, and on each side of the chest, generally a little below, but sometimes nearly on a level with, or even higher than the nipple. The depressions on the sides of the thorax are generally very obvious (especially on the right) to the eye, looking obliquely at them, but much less so if the eye be directed vertically to the surface. A line drawn through those points would, so far as I have observed, encircle the chest nearly horizontally, passing, in most cases, under the right nipple, about an inch, and somewhat lower generally, on the left side, and crossing the spine somewhere about the ninth or tenth dorsal vertebra, and the sternum, about the insertion of the ensiform cartilage. This intervisceral boundary line, or course and summit level of the diaphragm, is, in health, at the same time, the lowest level of the great bulk of the lungs and heart, and the highest level of the liver, stomach, and spleen; so that it is chiefly above this line or level that such manifestations of the presence and action of the thoracic viscera as are of much practical importance, may commonly be expected; while, with respect to the contiguous abdominal viscera, the reverse of course is the fact. Below this line there is, in the majority of cases,

but a comparatively small portion of lung, often little more than a layer, constituting the edge or margin of the organ, and this margin is pressed against the ribs by the masses of the liver, stomach, and spleen, which rise up behind and inside it under the ribs; heaving up, as it were, the diaphragm, and giving to the upper surface of that organ a rounded or conical shape.

This intervisceral line or course and summit level of the diaphragm is not equally obvious, I have said, in all cases. In many there is, below the depression that marks it in the region of the mamma, an obvious convexity or protrusion of the ribs towards the hypochondrium, over the whole of which, on both sides, there is usually a deficiency of true pulmonary resonance, and but feeble, if any, murmur of respiration; while, on the right side, there is more or less dulness to percussion, owing to the liver; and on the left, the hollow sound over a considerable space below and outside the cardiac region, that denotes proximity of intestinal gases, owing to the stomach. But in not a few cases there is no obvious convexity of the ribs below the mamma, and the lateral depressions are shallow and obscure. In such cases the diaphragm line is often very observable at the spine. From the end of the dorsal region up to about the ninth and sometimes the eighth vertebra of the back, the depressions or grooves of the vertebral column are deep and conspicuous; but about either of the points referred to they seem to shallow or terminate, and then the diaphragm may be considered as changing its more vertical direction for one more horizontal; so that from a state approaching to parallelism with the false ribs, it sweeps upwards away from them with a rapidly widenin[illegible]le, until it reaches the plane of [illegible] tendon; and a girdle drawn over the ninth vertebra, or between that and the tenth below, or the eighth above, and continued horizontally round the body, would, in most cases, approach nearly to, but fall a little below, the line of superior level of the diaphragm.

But even in deep chests, with uniformly curved ribs, the practised eye can generally point out pretty accurately the course of the diaphragm. I have repeatedly witnessed the facility with which my friend Dr. Harrison detects it, when to the inexperienced eye very obscure; and have observed the facility and dispatch it occasionally gives to his diagnosis in pectoral diseases.

Of the *clinical* applications of this intervisceral line or level and course of the diaphragm, I am less prepared to speak, with the confidence of personal experience, than of the reality of the line itself, of which I have experimentally satisfied myself both in the wards and in the dead-house. It is, in fact, not many months since Dr. Harrison communicated to me his views on the subject, and pointed out, for the first time, at the Marylebone Infirmary, examples illustrating his observations.

But there are one or two considerations which I may mention as evidence of the importance of a knowledge of the course of the diaphragm, and consequently of the utility of an easy method of ascertaining it.

Every one familiar with the mechanical diagnosis, more especially in pectoral diseases, is aware, that somewhere about the mammæ there is a line in healthy persons, below which the true pulmonary sounds become deficient; and that this is owing to the close proximity of the diaphragm, and its attached or contiguous abdominal viscera. Also, that this line varies considerably in individuals. Now this variation occasions embarrassment, by making it difficult to determine in new cases how much is normal in the deficiency of resonance or murmur, or of both, and how much is irregular, or the effect of disease; and whether the apparent deficiency arises from the close proximity of an abdominal viscus, and the smallness of the interposed portion of lung; or from the hepatization of the subjacent pulmonary tissue; or effusion, &c. into the pleura, &c. &c. Also when pulmonic disease is certain, it is important to have some measure of the extent of the morbid action. Now for both objects the advantage is obvious of a mode of detecting the levels and course of the diaphragm, which is easy of application, and not liable to material variation or modification by internal disease; for since the lungs and heart above, and liver, stomach, and spleen below, are in constant and necessary contact with the diaphragm, it is obvious, that to know the course of the latter is to know the relative positions for the most part of all the former, and, consequently, to know where the peculiar physical signs denoting the presence

or proximity of any of them may be counted on both in health and disease. So much for the present: on a future occasion I expect to be provided with practical instances of the utility of Dr. Edwin Harrison's suggestions.

ACCOUNT

OF A

NEW METHOD OF SEPARATING SMALL QUANTITIES OF ARSENIC

FROM SUBSTANCES WITH WHICH IT MAY HAVE BEEN MIXED *.

By James Marsh, Esq.

Of the Royal Arsenal, Woolwich.

Notwithstanding the improved methods that have of late been invented of detecting the presence of small quantities of arsenic in the food, in the contents of the stomach, and mixed with various other animal and vegetable matters, a process was still wanting for separating it expeditiously and commodiously, and presenting it in a pure unequivocal form for examination by the appropriate tests. Such a process should be capable of detecting arsenic not only in its usual state of white arsenic or arsenious acid, but likewise in that of arsénic acid and of all the compound salts formed by the union of either of these acids with alkaline substances. It ought, also, to exhibit the arsenic in its reguline or metallic state, free from the ambiguity which is sometimes caused by the use of carbonaceous reducing fluxes. It appeared to me, that these objects might be attained by presenting to the arsenic hydrogen gas in its nascent state: the first action of which would be to deoxygenate the arsenic; and the next, to combine with the arsenic, thus deoxygenated, into the well-known gas called arsenuretted hydrogen. Being thus brought to the gaseous state, the arsenic would spontaneously (so to speak) separate itself from the liquor in which it was before dissolved, and might be collected for examination by means of any common gas apparatus; thus avoiding the trouble, difficulty, and ambiguity of clarification, and other processes, whereby liquors, suspected of containing arsenic, are prepared for the exhibition of the usual tests, or of evaporation and deflagration which are sometimes had recourse to in order to separate the arsenic from the organic substances with which it may have been mixed.

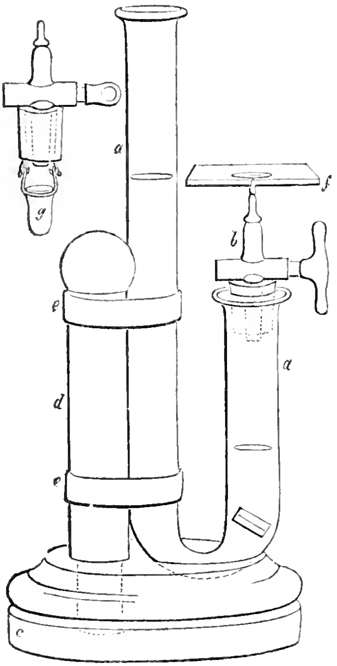
I had the satisfaction of finding, on trial, that my anticipations were realized; and that I was thus able, not only to separate very minute quantities of arsenic from gruel, soup, porter, coffee, and other alimentary liquors, but that, by continuing the process a sufficient length of time, I could eliminate the whole of the arsenic in the state of arsenuretted hydrogen, either pure, or, at most, only mixed with an excess of hydrogen.

If this gas be set fire to as it issues from the end of a jet of fine bore into the common air, the hydrogen, as the more combustible ingredient, will burn first, and will produce aqueous vapour, while the arsenic will be deposited either in the metallic state, or in that of arsenious acid, according as it is exposed partially or freely to the air. The former condition is brought about by holding a piece of cold window glass opposite to and in contact with the flame, when a thin metallic film will be immediately deposited on its surface; and the latter, by receiving the flame within a glass tube open at both ends, which, in half a minute, will be found to be dimmed by a white pulverulent sublimate of arsenious acid. By directing the flame obliquely within side of the tube, it strikes against the glass, and deposits the arsenic partly in the metallic state. In this case, if the tube, while still warm, be held to the nose, that peculiar odour, somewhat resembling garlic, which is one of the characteristic tests of arsenic, will be perceived. Arsenuretted hydrogen itself has precisely the same odour, but considerable caution should be used in smelling to it, as every cubic inch contains about a quarter of a grain of arsenic.

The requisite apparatus is as simple as possible; being a glass tube open at both ends, and about three-quarters of an inch in its internal diameter. It is bent into the form of a syphon (*aa*, fig. 1), the shorter leg being about five inches, and the longer about eight inches in length. A stop-cock *b*, ending in a jet of fine bore, passes tightly through a

* From the Transactions of the Society of Arts, vol. li. The large gold medal of the Society was presented to Mr. Marsh for the communication of his method.

FIG. 2. FIG. 1.



hole made in the axis of a soft and sound cork, which fits air-tight into the opening of the lower bend of the tube, and may be further secured, if requisite, by a little common turpentine lute. To fix the apparatus, when in use, in an upright position, a hole is made in the wooden block *c*, for the reception of the lower part of the pillar *d*, and a groove is cut in the top of the same block to receive the bend of the tube, *a a*. Two elastic slips, *e e*, cut from the neck of a common bottle of India rubber, keep the tube firm in its place.

The matter to be submitted to examination, and supposed to contain arsenic, if not in the fluid state, such as pastry, pudding, or bread, &c., must be boiled with two or three fluid ounces of clean water, for a sufficient length of time.

The mixture so obtained must then be thrown on a filter to separate the more solid parts: thick soup, or the contents of the stomach, may be diluted with water, and also filtered; but water-gruel, wine, spirits, or any kind of malt liquor and such like, or tea, coffee, cocoa, &c., can be operated on without any previous process.

When the apparatus is to be used, a bit of glass rod, about an inch long, is to be dropped into the shorter leg, and this is to be followed by a piece of clean sheet zinc, about an inch and a half long, and half an inch wide, bent double, so that it will run down the tube till it is stopped by the piece of glass rod first put in. The stop-cock and jet are now to be inserted, and the handle is to be turned so as to leave the cock open. The fluid to be examined, having been previously mixed with from a drachm and a half to three drachms of dilute sulphuric acid (1 acid and 7 water), is to be poured into the long leg, till it stands in the short one about a quarter of an inch below the bottom of the cork. Bubbles of gas will soon be seen to rise from the zinc, which are pure hydrogen if no arsenic be present; but, if the liquor holds arsenic in any form in solution, the gas will be arsenuretted hydrogen. The first portions are to be allowed to escape, in order that they may carry with them the small quantity of common air left in the apparatus; after which the cock is to closed, and the gas will be found to accumulate in the shorter leg, driving the fluid up the longer one, till the liquor has descended in the short leg below the piece of zinc, when all further production of gas will cease. There is thus obtained a portion of gas subject to the pressure of a column of fluid of from seven to eight inches high: when, therefore, the stop-cock is opened, the gas will be propelled with some force through the jet, and, on igniting it as it issues (which must be done quickly by an assistant), and then holding horizontally a piece of crown or window-glass (*f*, fig. 1) over it, in such a manner as to retard slightly the combustion, the arsenic (if any be present) will be found deposited in the metallic state on the glass; the oxygen of the atmosphere being employed in oxydizing the hydrogen only during the process. If no arsenic be present, then the jet of the flame as it issues has a very different appearance; and, although the glass becomes dulled in the first instance by the deposition of the newly formed water, yet such is the heat produced, that in a few seconds it becomes perfectly clear, and frequently flies to pieces.

If the object be to obtain the arsenic in the form of arsenious acid, or white arsenic, then a glass tube, from a quarter to half an inch in diameter (or according to the size of the jet of flame), and eight or ten inches in length, is to be held vertically over the burning jet of gas, in such a manner that the gas may undergo perfect combustion, and that the arsenic combined with it may become sufficiently oxydized; the tube will thus, with proper care, become lined with arsenious acid in proportion to the quantity originally contained in the mixture.

When the glass tube is held at an angle of about forty-five degrees over the jet of flame, three very good indications of the presence of arsenic may be obtained at one operation; viz. metallic arsenic will be found deposited in the tube at the part nearest where the flame impinges,—white arsenic or arsenious acid at a short distance from it,—and the garlic smell can be readily detected at either end of the tube in which the experiment has been made.

As the gas produced during the operation is consumed, the acid mixture falls into the short limb of the tube, and is thus again brought into contact with the zinc, in consequence of which a fresh supply is soon obtained. This gas, if submitted to either of the processes before described, will give fresh indications of the presence of the arsenic which the mixture may have originally contained; and it will be easily perceived that the process may be repeated as often as may be required, at the will of the operator, till no further proofs can be obtained.

When certain mixed or compound liquors are operated on in this apparatus, a great quantity of froth is thrown up into the tube, which may cause a little embarrassment by choking the jet. I have found this effect to take place most with the contents of the stomach, with wine, porter, tea, coffee, or soup, and, indeed, with all mucilaginous and albuminous mixtures. The means I adopt to prevent this effect from taking place, or, at least, for checking it in a great measure, is to grease or oil the interior of the short limb of the apparatus before introducing the substance to be examined, or to put a few drops of alcohol or sweet-oil on its surface previously to introducing the stopcock and its appendages. I have, however, found, if the tube be ever so full of froth in the first instance, that, in an hour or two, if left to itself, the bubbles burst, and the interior of the tube becomes clear without at all affecting the results.

In cases where only a small quantity of the matter to be examined can be obtained, I have found a great convenience in using the small glass bucket (*g*, fig. 2). Under such circumstances, the bent glass tube may be filled up to within an inch of the short end with common water, so as to allow room for the glass bucket, which must be attached to the cork, &c. by means of a little platina wire; a bit or two of zinc is to be dropped into the bucket, with a small portion of the matter to be examined, and three or four drops of diluted sulphuric acid (acid 2, water 14); and the whole is then to be introduced into the mouth of the short limb of the tube. The production of gas under this arrangement is much slower, and, of course, requires more time to fill the tube, than in the former case; but the mode of operating is precisely the same. Indeed, it is of great advantage, when the quantity of arsenic present is very minute, not to allow the hydrogen to be evolved too quickly, in order to give it time to take up the arsenic.

A slender glass funnel will be found of service when as much as a table-spoonful, or even a tea-spoonful of matter, can be obtained for examination. In this case the tube is to be partly filled with common water, leaving a sufficient space for the substance to be examined: a piece of zinc is to be suspended from the cork by a thread or wire, so as to hang in the axis of the tube; and the fluid to be operated on, having previously been mixed with dilute sulphuric acid, is then to be poured through the funnel carefully, so as to surround the zinc, avoiding, as far as possible, to mix it with the water below, and the stopcock and its appendages are to be replaced in the mouth of the tube: the production of the gas then goes on, as before stated, and the mode of manipulating with it is exactly the same as described in the foregoing part of this paper.

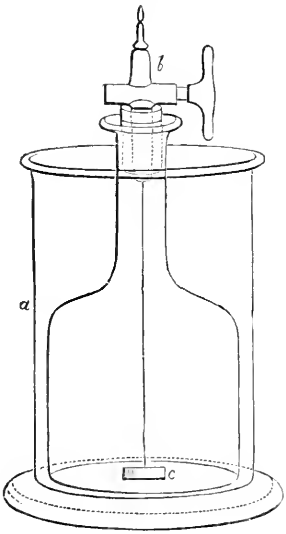
It will be necessary for me, in this place, to explain the methods I employ after each operation, to determine the integrity of the instrument, so as to satisfy myself that no arsenic remains adhering to the inside of the tube, or to

the cork and its appendages, before I employ it for another operation.

After washing the apparatus with clean water, a piece of zinc may be dropped in, and the tube filled to within half an inch of the top of the short limb: two drachms of diluted sulphuric acid are then poured in, and the stop-cock and cork secured in its place: hydrogen gas will in this case, as before, be liberated, and fill the tube. If the gas as it issues from the jet be then inflamed, and a piece of window glass held over it, as before described, and any arsenic remains, it will be rendered evident by being deposited on the glass; if so, this operation must be repeated till the glass remains perfectly clean, after having been exposed to the action of the gas.

When I have had an opportunity of working with so large a quantity of mixture as from two to four pints (imperial measure), I then have employed the instrument (fig. 3), which is, indeed, but a slight modification of one of the instantaneous light apparatuses, now so well known and used for obtaining fire by the aid of a stream of hydrogen gas thrown on spongy platinum. It will, therefore, be of importance only for me to describe the alteration which I make when I employ it for the purpose of detecting arsenic. In the first place I must observe, that the outer vessel *a*, which I use, holds full four pints, and that the jet of the stopcock is vertical, and its orifice is twice or three times larger than in the instrument as generally made for sale, and also that there is a thread or wire attached to the cork of the stopcock *b*, for suspending a piece of zinc *c*, within the bell-glass.

Fig. 3.



With an instrument of this description I have operated on one grain of arsenic in twenty-eight thousand grains of water (or four imperial pints), and have obtained therefrom upwards of one hundred distinct metallic arsenical crusts.

Similar results have been obtained with perfect success from three pints of very thick soup, the same quantity of port wine, porter, gruel, tea, coffee, &c. &c.

It must, however, be understood, that the process was allowed to proceed but slowly, and that it required several days before the mixture used ceased to give indication of the presence of arsenic; and, also, a much larger portion of zinc and sulphuric acid was employed from time to time, than when working with the small bent tube apparatus, in consequence of the large quantity of matter operated on under this arrangement.

With the small apparatus I have obtained distinct metallic crusts, when operating on so small a quantity as one drop of Fowler's solution of arsenic, which only contains 1-120th part of a grain.

The presence of arsenic in artificial orpiment and realgar, in Scheele's green, and in the sulphuret of antimony, may be readily shewn by this process, when not more than half a grain of any of those compounds is employed.

In conclusion, I beg to remark, that although the instruments I have now finished describing are the form I prefer to all that I have employed, yet it must be perfectly evident to any one, that many very simple arrangements might be contrived. Indeed, I may say unequivocally, that there is no town or village in which sulphuric acid and zinc can be obtained, but every house would furnish to the ingenious experimentalist ample means for his purpose; for, a two-ounce phial, with a cork and piece of tobacco-pipe, or a bladder, with the same arrangement fixed to its mouth, might, in cases of extreme ne-

cessity, be employed with success, as I have repeatedly done for this purpose.

The only ambiguity that can possibly arise in the mode of operating above described, arises from the circumstance, that some samples of the zinc of commerce themselves contain arsenic; and such, when acted on by dilute sulphuric acid, give out arsenuretted hydrogen. It is, therefore, necessary for the operator to be certain of the purity of the zinc which he employs; and this is easily done by putting a bit of it into the apparatus, with only some dilute sulphuric acid. The gas thus obtained is to be set fire to as it issues from the jet; and if no metallic film is deposited on the bit of flat glass, and no white sublimate within the open tube, the zinc may be regarded as in a fit state for use.

ON THE PRACTICE

OF

APPLYING LEECHES TO THE INTERNAL NASAL SURFACE IN AFFECTIONS OF THE HEAD, &c.

CLAIMS OF MR. WARDROP.

To the Editor of the Medical Gazette.

SIR,

IN No. 447 of your journal, being that of the 25th June last, I perceive a communication, signed H. B. Burford, to the effect that the writer had witnessed the most decided benefit from the application of a leech to the lining membrane of the nasal septum, in two cases of severe affection of the head; and he expresses himself as if this mode of local bleeding had been *originally* recommended by Mr. Wardrop. In the recent treatise on Blood-letting by that surgeon, I find he says, at page 37, "I had often thought that some mode might be contrived by which an artificial flow of blood from the ethmoidal vessels could be produced, as there are, no doubt, many affections of the head which would be relieved by such an operation; or that leeches might be safely applied to the interior of the nostril." Mr. Wardrop then states two cases of his own, in illustration of the efficacy of this practice, and one to a similar purport which was under the care of Mr. Miller, of Enfield, who, like Mr. Burford, seems to believe that Mr. Wardrop was the originator thereof.

That this mode of abstracting blood locally is as beneficial as Mr. Wardrop, Mr. Miller, and Mr. Burford, assert it to be, there can be no question; but I am indeed astonished that a person of Mr. Wardrop's extensive researches (such, at least, I assume) should not have acknowledged that *he* was not the individual who even *introduced* the practice into these kingdoms, but that *his own obligations for it* are due to the distinguished Surgeon-General of Ireland, Dr. Philip Crampton, who, in a highly valuable and important communication in the third volume of the Dublin Hospital Reports, page 223, "On the Application of Leeches to Internal Surfaces," writes thus in regard to their application to the internal surface of the nostrils:—"In affections of the head connected with an undue determination of blood to the brain, or with the suppression of an habitual epistaxis, the greatest relief is frequently obtained by the application of leeches to the internal surface of the nostrils. This practice, which is so generally adopted on the continent, has not, I apprehend, in this country met with all the attention which it deserves." I have now to observe that I adopted the practice on the recommendation of Dr. Crampton, several years before Mr. Wardrop's lectures saw the light.

As Mr. Wardrop's merits as an *originator* of useful modes of practice are now under discussion, I must also claim leave to direct the attention of your readers to his recent statement, as an *observer*, on bleeding from the posterior auricular vessels by the application of leeches behind the ears. At page 36 of his treatise, he says that blood "may be also taken from the vessels which pass through the mastoid foramen of the temporal bone, the veins communicating directly with the lateral sinus, and the artery being a branch of the occipital which goes to the dura mater." And at page 39 he adds, "Leeches applied behind the ears are well known to relieve affections of the head,—a practical fact satisfactorily accounted for by that vascular communication between the integuments behind the ear and the en-

cephalon, to which I have already alluded."

In these lectures, published as they were at first *elsewhere*, in detached parts, Mr. Wardrop very properly acknowledges, that with the physiological explanation of this practical fact he was unacquainted, *until Mr. Quain observed* that the beneficial effects could satisfactorily be accounted for by the vascular communication above stated. It certainly appears wonderfully strange that in the "Discourses," collected and published in their recent form, he has not repeated the acknowledgment. It may be, perhaps, that Mr. Wardrop thought, that, after the appearance of the collected "Discourses," reference would never be made to the pages in which they were published at first, and that, therefore, he might let the acknowledgment rest where it was. But since he has omitted to do that justice which is due to others, he must not be aggrieved if another should presume to supply the deficiency; and, in the present instance, by dragging the said acknowledgment forth from its lurking place. That will be found in the 532d No. of the Lancet, being of date November 9, 1833, first volume for 1833-34, page 240.

I have only to add, that with both Dr. Crampton and Dr. Quain I am personally unacquainted; they are known to me only by their professional renown.—I remain, sir,

Your most obedient servant,

JONATHAN DAWPLUCKER.

July 13, 1836.

MEDICAL CERTIFICATES,

IN CASES OF LIFE ASSURANCE, OUGHT TO BE PAID FOR BY THE COMPANIES.

To the Editor of the Medical Gazette.

SIR,

SHOULD the following correspondence seem calculated to assist you in your praiseworthy efforts on behalf of medical practitioners, in the matter relating to fees for certificates for Life-Insurance Offices, it is at your service. May I ask, why are surgeons such dupes as not to take the matter into their hands *individually?* Why should those whose opinions are worth any thing, *give* them through fear of they know not what? There are some attempting arrangements for 7*s*. for each certificate. Enter into no such agreements, but charge what will reasonably remunerate your trouble, and cover the *risk of giving offence in unfavourable instances.* I am sure not less than 10*s*. 6*d*. will do so in my own case, and if I find many like the one I am going to relate, I shall not long hesitate to ask a guinea, *and to say nothing until I have it.*

I received, a short time since, a circular from the West of England Insurance Office, Exeter, asking my opinion on Mr. ——. I refolded the letter, and sent back — "No fee, no certificate." Soon afterwards I obtained the promise of a fee in a note from one of the agents. The policy was declined. Down comes on my head the wrath of a rich neighbour, who said that I had not been candid in not giving him my opinion before I sent to the office. The other parties interested are likely to be displeased with me, and altogether, ill-will, and even pecuniary loss, are likely to accrue, and all for nothing—no, I beg pardon, for *the gain* of an Insurance Office which has corresponded with the friends of the party to be insured, *and given them to understand that the life was accepted, but they were waiting for the medical attendant's certificate as a matter of course.* The medical man who submits to such treatment, must, I think, deserve far worse. You will see from the subjoined correspondence, I think, that the Equitable(!) Office intended to chastise me: they are quite mistaken, and their returning my letter is fortunate, as I can now forward a copy of it to yourself.

Yours obediently,

HENRY MUDGE,
Surgeon.

Bodmin, Cornwall, 1836.

No. 1.

A routine application, dated May 19, 1836, for a certificate as to the health, &c. of Mr. Thomas Clarke.

No. 2.

Bodmin, June 4, 1836.

Sir,—I beg leave to refer the Directors of your office to two articles on Life Insurance in the LONDON MEDICAL GAZETTE, published this month. It has been my rule for years to decline all reply, except on the payment of a fee of 10*s*. 6*d*. BY THE COMPANY'S AGENT. No other application do I make, and

thanks to the grasping covetous rivalry of Insurance Offices, my mode is *perfectly successful.* Your reply, free of cost, by return of post, will oblige,

Yours, &c.

HENRY MUDGE,
Surgeon.

To Mr. Morgan, Actuary,
Equitable Insurance Office, &c.

No. 3.

Equitable Insurance Office,
June 9, 1836.

Sir,—The Directors of this society have desired me to enclose for your perusal, the reply of Mr. H. Mudge, your medical referee, to our letter of inquiry forwarded on the 19th ult. And at the same time to request you to furnish them, by return of post, with the names of any two friends to whom further reference may be made, regretting the cause of this delay,

I remain, Sir,
Your obedient servant,
J. S. MARTINEAU,
Assistant Actuary.

To Mr. T. Clarke, Chemist, &c.
Bodmin, Cornwall.

KERATONYXIS, AS PERFORMED AT MUNICH.

IN REPLY TO MR. MIDDLEMORE.

To the Editor of the Medical Gazette.

SIR,

I PERCEIVE, in a recent number of the GAZETTE, a letter from Mr. Middlemore, which will be read with surprise by many, both in England and on the Continent, who attach themselves more especially to the treatment of diseases of the eye, in which he states the accounts of Professor Walther's mode of operating for cataract, which I transmitted to you, to be erroneous, and so indefinite and loosely constructed as to be unintelligible. On reperusing my words, I do not see that I could have expressed myself more clearly: but as Mr. Middlemore requests a more lucid explanation, I beg to repeat that M. Walther operates, not only usually, but I may say almost invariably, in the manner I have described; though I will not undertake to say that, in some exceptionable cases, he might not be induced to operate by extraction. *On using the needle, he always makes the puncture through the centre of the cornea*, and depresses or breaks up the lens, according to circumstances. In stating that no unpleasant symptoms succeeded one of the operations which I saw, I considered my meaning to be sufficiently intelligible, that none of the inflammatory or other consequences ensued, which tend to prevent a successful result.

That the practice of M. Walther should be characterized by Mr. Middlemore as extraordinary, defective, and necessarily calculated to render the centre of the cornea opaque, merely shows, that that gentleman has had too few opportunities of seeing keratonyxis properly performed, to appreciate it rightly; and that he is not aware it is frequently preferred to other methods by the most eminent continental oculists. During my residence in Munich, Professor Walther had the kindness to show me several individuals from six to eighteen months after the operation, in whom the cornea presented not the slightest opacity, or vestige of a cicatrix, the eyes being bright and clear, as when in the healthiest condition; there is nothing extraordinary in this, as the same thing is very often seen after accidental wounds of the cornea, and after extraction. While in Germany, and while attending M. Sichel's excellent clinique in Paris, I have repeatedly seen the performance of keratonyxis attended with the happiest results, and I trust it will be more generally adopted in England, in cases where it is indicated.—I am, sir,

Your obedient servant,
EDWIN LEE.

London, July 18, 1836.

EXTRAVAGANT PRICE OF FOREIGN BOOKS IN LONDON.

To the Editor of the Medical Gazette.

SIR,

YOU frequently recommend French and German works which pass the ordeal of your criticism. Allow me to ask, through the medium of your valuable journal, how those works may be procured at a fair and reasonable rate? To me, who have a sort of passion for buying books,

and am besides obliged, in consequence of certain engagements, to go on purchasing, in order to keep myself as much as possible *au niveau* with the progress of medical science, it is no small object to obtain them *à bon marché*. But, sir, the foreign booksellers here seem leagued in upholding a most inordinate *tariff*. On every French work they charge above a fifth, or 20 per cent., more than the Paris price—that is to say, from 45 to 50 per cent. more than it could be obtained for, with a little management, in Paris. The charges for German books are still more enormous: 33 per cent., at the very least, is laid on in the first instance; and not long since it was not unusual to pay 60 per cent. more than that marked in the German cataloges!

Surely this, sir, is a matter that requires reform: book buyers ought to resist such unwarrantable extortion on the part of their booksellers, who, as importers, have no excuse whatever for continuing their present scale of prices. It is now nearly two years since the duty on foreign books was reduced one-half, yet not a penny has hitherto been saved to the purchaser.

Perhaps you will be good enough to give these few remarks insertion: they may attract the notice of others as much interested in this question as myself, and perhaps lead to the extinction of something very like a gross monopoly.

Yours very obediently,
BIBLIOPHILUS.

London, July 21, 1836.

MEDICAL GAZETTE.

Saturday, July 23, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

PARLIAMENTARY EVIDENCE.

SOCIETY OF APOTHECARIES.

HAVING formerly taken more than one opportunity of noticing the masses of parliamentary papers issued relative to the Colleges of Physicians and Surgeons, it would not, perhaps, be quite fair in us, now that the evidence respecting the Apothecaries' Society has appeared, to withhold from that part of the Medical Education Report some share of our attention. It is not that there is in this new delivery of what may now be considered *old* evidence, any thing rare, or calculated to strike the reader with an air of novelty borrowed even from the circumstance of its recent publication; but perhaps in the way of reference, and for confirmation of opinions already amply discussed, there may be something in it not altogether uninteresting. Besides, these documents will in time no doubt be curious, and constitute an authentic record of men and things bygone: in this respect they may prove valuable hereafter in the library — though at present they are procurable for little more than the price of waste paper.

Compared with its predecessors the present part of the medical report is of moderate bulk: the reader, however, must not on that account expect to find it more condensed. The same prolixity, and eternal repetition of the same questions to successive witnesses, eliciting, of course, in ninety-nine cases out of a hundred, the same answers, are here to be found, testifying abundantly to the time misspent in the Warburtonian investigation, and the pains taken to accumulate a heap of material utterly impracticable for legislatorial purposes to digest.

But to come to the special evidence of the Master, Wardens, Chairmen, and other functionaries of the worshipful Society, we need scarcely premise or repeat, that, in offering a few extracts, we have no expectation of presenting any thing *recherché* to our readers: we merely wish to give the views of some of the official personages connected with the Society, touching the projects of reform suggested from so many quarters.

The first witness called is Mr. Nussey, then Master of the Company. Among the opening questions put to him, he is asked to define what an apothecary is, "according to legal decisions." The reply is, that, according to the decision in Rose's case, an apothecary is one who is "competent to ascertain the nature of a disease, and to treat that disease." Upon being asked next, whether the supplying of medicine is an essential part of the apothecary's duties, he says, "That is as it may happen. In my situation in life I am sometimes called upon to prescribe; to give my opinions, without sending medicine." Above a hundred questions are then proposed to witness concerning the form and constitution of the Society, and the system of education adopted under the Act of 1815. The imperfections of that Act are freely pointed out by Mr. Nussey, as well as by others of the Society, whose evidence is before us. What relates to the apprenticeship clause is worth extracting: the master is under examination:—

In clause 14, we think that 22 should be substituted for 21 years.

That is not so much a defect in the Act, as a matter of opinion?—Quite so: we consider it advisable that a man should not begin to practise till he is 22 years of age. There is clause 15, the apprenticeship clause, as it is called. I conceive that the apprenticeship is unnecessarily long.

How long ought it to last?—I should say three years would be quite sufficient, perhaps two. * * * * I should say two or three years would be the minimum: that a young man's education might be embraced in five years: two or three years of apprenticeship, and two years devoted to his studies: if three years, perhaps the better.

Mr. Nussey is clearly of opinion that a man cannot be properly qualified for general practice without undergoing an apprenticeship of two years at least, no matter what had been his previous education. And it may be observed, that none of the members of the Society seem willing that the apprenticeship clause should be abolished altogether: most of them admit that it might be beneficially altered, and its application even dispensed with in some very peculiar cases: but none are disposed to give up the "good old system" of apprentices.

We have on several occasions expressed our opinions respecting apprenticeship as a part of medical education, and must confess, that nothing we have read in the evidence now laid before the public has weight enough to alter those opinions. Mr. Warburton, we perceive, quoted to one witness, the remarks of Dr. Thomson, of Edinburgh, on the subject; showing that this arrangement in the Apothecary's Act is one "in which the interests of those who are training to the profession are sacrificed to the interests of those who are already engaged in its practice: but when we remember," continues Dr. Thomson, "the circumstances under which a large proportion of those apprenticeships must be passed, at a distance from any school, where either preparatory or professional knowledge might be acquired, the evil to which they give rise assumes a still more serious character. For it is in vain to expect, that the most conscientious master can compensate to his apprentices by his own instruction, for the want of those opportunities of acquiring a knowledge of the different branches of medicine, that are afforded by attendance on the instructions and lectures of professed teachers; and when we remember how small a portion of country practitioners can have the leisure, even if they had the inclination and ability necessary for guiding the studies of their apprentices, we cannot be surprised that apprenticeships of this kind should be, what they are now generally

considered by the liberal and enlightened part of the profession, more frequently the nurseries of idleness and ignorance than of industry and knowledge." To these observations, as read by Mr. Warburton, Mr. Ridout ventured a reply; part of which we will take leave to extract :—

The whole tenor of the passage seems to proceed upon the assumption that the whole of the five years are passed in apprenticeship. I have already proved that, upon the average, three years and seven months only are passed in apprenticeship with the master; but it does not follow from that, the apprentice has not attended some lectures previously to finally leaving his master: substantially the apprenticeship ends at three years and seven months. If the medical schools were organized as colleges, where young men were subject to superintendence and control, and if students were afforded an opportunity of seeing the classes of diseases before referred to—namely, diseases affecting children under five years of age, and the aged above seventy—then the apprenticeship system might be done away with: but at present, hospitals and medical schools do not afford any control over medical students; nor do they afford them practical information respecting those diseases which destroy more than one-half of the population.

We believe that this passage contains all that is to be said in favour of apprenticeships; but we have on former occasions proved how weak are all such pretexts for the maintenance of so servile and degrading a system.

In Mr. Bacot's evidence there are some interesting passages concerning the proceedings of the Society, in prosecuting unlicensed practitioners. Mr. Warburton presses the witness as to whether the Society does not frequently overlook the preamble of the Act which designates the "wholly ignorant and utterly incompetent," as the proper objects for exercising its powers upon, while it adopts harassing measures towards persons of unquestionable education, who have not complied with the regulations issued at Blackfriars. Mr. Bacot gives an amusing instance of the sort of persons with whom the Society sometimes has to deal. "Perhaps," he says, "the powers of the Society do not always fall on those most deserving of prosecution, though much pains have been taken to select for prosecution people very ignorant indeed. The first prosecution under the Act was against a man in Staffordshire, of the name of *Warburton*. He said in court that he was a "sergeant," which induced the Judge to ask him to spell the word; this he tried to do seven times, but failed each time!"

Regarding the much-mooted question of establishing a general Board of Examiners, there are some passages in the evidence before us worth extracting.

In the examination of Mr. Bacot, the following questions and answers appear :—

It has been recommended by Dr. Barlow and other writers on the subject of medical reform, to consolidate the Apothecaries' Society and the College of Surgeons into one body, whose province it should be to examine candidates for general practice, and to supervise general practitioners. Should you approve of such a consolidation?—I think it better that the two bodies should remain independent, and that young men should pass both ordeals, first one, and then the other.

What inconveniences would attend a consolidation of the two corporations? —I should imagine that there might be collisions and disputes between the parties, which do not occur, and are not likely to occur, at present.

Should you approve of establishing a general Board of Examiners, consisting of physicians, surgeons, and apothecaries, for the purpose of examining all candidates intending to practise, whether in physic, surgery, or as general practitioners; or do you prefer retaining separate Boards, one for each branch of the profession?—I think it is better that they should remain sepa-

rate as they now are, remedying such defects in each as are apparent.

Reasons of a pointed nature are assigned by Mr. Nussey for discountenancing a tripartite Board :—

Do you see any objections to appointing deputies from the College of Surgeons and College of Physicians, jointly with members or licentiates of your Society, to examine candidates claiming admission to act as general practitioners?—I do see many objections to such a course. Those objections would be less if there was a better understanding between the three branches of the profession; but until that better understanding shall subsist, I apprehend a Board composed of those three bodies would be generally disputing and wrangling among themselves, and that the deputation of apothecaries would have no chance at all with the other two-thirds, composed, as they would be, of physicians and surgeons!

On the subject of public examinations there are some sound remarks in the evidence of Mr. Ridout, which, if we had room, we should extract at length; but we must confine ourselves to a few passages.

Would it be expedient to permit professional men, and medical students, to be present at your examinations?—The admission of the public to our examinations would certainly ensure fidelity, strictness, and integrity on the part of the examiners; but that good would be obtained, I think, at a certain and considerable cost. It would materially alter, I fear, the character of the examination, and make it more theatrical in its nature, and rather adapted for show than a quiet mode of procedure, best adapted to elicit from a timid student that knowledge which he possesses.

* * * * *

Were medical students permitted to be present at your examinations, would it not satisfy them and the public that your examinations were conducted with perfect fairness?—It might lead to that, certainly; but that information would be gained at considerable cost to themselves.

What cost?—The candidate under examination, if he was to make a mistake, as they frequently do—not from ignorance, but from diffidence, or temporary lapse of memory—would be subject to have his mistake quoted against him: an apprehension of that would embarrass him very considerably.

Would not this objection apply to all public examinations, and among others, to examinations at our Universities?—The examinations there are more of a scholastic kind than those that bear upon a man's profession. If he was to give a foolish answer, that might be told afterwards to his injury.

There were several other passages which, on looking through the present fasciculus of evidence, we marked as deserving of comment and extraction, —particularly what several of the witnesses stated with regard to the awkward predicament in which midwifery is placed under the existing regulations of the examining Boards, — one of which will not condescend, another will not take the trouble, and the other cannot venture, to meddle with it. But we must have done for the present, as we have already gone beyond the limits we intended.

THE NEW UNIVERSITY.

"The cry is still—they come!" We informed our readers, a month ago, that although the arrangements of the New University were said to be completed, yet the extreme weakness of the medical department, as originally planned, made the patrons of the new institution reluctant to launch it on the ocean of public opinion. This has been the real hitch; but we believe we are correct in stating that some fresh names have been added to the list of examiners, and some additional appointments recently made; so that, *probably*, at no distant day, the announcement of the University, at length organized, will be officially communicated. The parties now mentioned as the Medical Board, or Faculty, are, Sir James M'Grigor, Dr. Hewett,

Dr. Roget, Dr. Arnott, Dr. James Clarke, Dr. Sims, and Dr. Locock. That most of the gentlemen above mentioned have been offered, and that some of them have actually accepted, the appointment of examiners, we know; the others we cannot vouch for, but give as the *on dit* in quarters likely to be well informed.

NATIONAL VACCINE BOARD.

Some allusion having been made, by our misrepresenting contemporary, to certain recent arrangements in the National Vaccine Establishment, we think it right to state the facts; which are simply as follow. On the death of the late Mr. Simpson, a member of the College of Surgeons, of known and tried efficiency, was selected as resident superintending officer. But as the situation proved not to be compatible with the views of that gentleman, the Board appointed Mr. Gillam, who has long been one of the stationary vaccinators, and who has vaccinated, perhaps, twice as many as any of the others; so that to him the Board and public have been mainly indebted for keeping up an unbroken supply of lymph. That it should be attempted to make such an appointment matter of reproach, shows that no arrangement could possibly have been made with which some would not have been found to find fault.

LECTURES

ON THE

DISEASES OF THE NERVOUS SYSTEM.

By M. Andral.

As published in the *Gazette des Hôpitaux*, with the approval of the learned Professor.

SECOND DIVISION.

I now proceed to speak of the different kinds of insanity in particular, and first of

MANIA.

This disease can only be defined by giving its history. It comes on, in most persons, with delirium, which is sudden and violent, without any warning; in others the change is gradual. Some degree of incoherence—some eccentricity of thought—some change in the affections, tastes, or habits—such are the indications usually observed. These phenomena, however, are not constantly the same; at first they are little marked, and do not lead to a suspicion of the impending evil, but they gradually increase, till at length the insanity breaks out, and there is no longer any room for mistake.

Mania does not always show itself under the same physiognomy. There are some maniacs who are like drunken persons; others have disordered ideas, but they appear to resume all their reason, and entirely to recover it, when their attention is fixed,—as by reading what interests them, or by conversing with a friend. But let their attention flag—let it be no longer occupied by any thing which engrosses it—and the mania resumes its sway. Again, we meet with other lunatics who have not even this short interval of lucidness. Occasionally there are times at which the patient regrets his loss of reason — moments at which his intellectual powers display themselves; some, indeed, who before had shown no remarkable talent, have become poets, or orators, during their madness: indeed, it is very extraordinary to witness the displays of genius which sometimes take place during these disorders, and often even during their exacerbation; for in madness there are periods of aggravation and of repose, or entire intermission: indeed, the disease is unquestionably, in some instances, intermittent and periodical.

The duration of mania is longer or shorter, according to circumstances: it may be only transitory, lasting but a few days, or it may endure for many years; its terminations are in recovery or death. In the latter case, the individuals sink in consequence of the different lesions which take place in the brain—such as congestion, hæmorrhage, &c. There are some maniacs who, in proportion as death approaches, have their cerebral congestion and excitement progressively diminished, and who fall into a state of remarkable prostration. Nothing is then found in the brain. In others, the fatal termination arrives when the patient passes from mania to dementia; and in this case some affection of the vascular system is often present. Death may supervene either when the disease is acute or after it has become chronic.

Mania is susceptible of cure, but such cure becomes the more difficult in proportion as a longer period has elapsed since the original attack. It has been ascertained that the first two years give the best

chance of success. Pinel, however, cites an instance in which mania was cured at the end of twenty-seven years The mode in which recovery takes place varies in different persons. Mania has been seen to disappear on the parotid glands becoming inflamed. Pinel attaches much importance to the supervention of diarrhœa. In others, ptyalism is the forerunner of recovery. As to the rest, the recovery may take place either suddenly or slowly; the latter is the more common. Relapses are of frequent occurrence.

MONOMANIA.

This affection presents two varieties: either there exists one predominant idea in the midst of the general trouble of the intellect, or else an individual whose intellect is sound on all other subjects, is perverted on some one particular point. The first variety is easily known; the second, long denied and mistaken, is still the subject of much controversy.

The forms of monomania vary infinitely, according to the age, sex, prevailing ideas of the age, &c. The disease has this in it remarkable—that it takes on, in some sort, a contagious character: this depends upon the development of the instinct of imitation. Thus an individual becomes affected with monomania; the news of this spreads, or the patient is seen by other persons, and, behold, many cases of monomania straightway take place. Common mania does not present this character.

Four great divisions may be established in monomania:—1. That which is created by perversion or exaggeration of one of the principal faculties of the intellect—such as the imagination, the judgment, the attention, or the memory. 2. Monomania, from the excitement or perversion of some passion or propensity. 3. Monomania, resulting from the exaltation or perversion of certain wants or instincts. [There are, in this third division, various subdivisions, according as the instincts are connected with relation, nutrition, or reproduction.] 4. Monomania produced by the exaggeration or perversion of certain sentiments. Thus man possesses naturally a feeling called self-esteem; and this, carried to too great an extent, becomes egotism. It may be replaced by the desire of suicide, or suicidal monomania. Another sentiment of the human mind is the love of others; and this, combined with the preceding, leads to the formation of social connexions. Again, a third sentiment leads man to the belief of a principle—a first cause, of all that he sees around him: this, like the two others, when exaggerated or perverted, becomes a monomania. Here, then, we have subdivisions into, 1st, self-love; 2dly, the love of others; 3dly, the love of God.

In whatever manner society is organized, it is only sustained and subsists by the equilibrium of these three great sentiments, and the preponderance of any one of them to an undue extent, is fatal to it.

Monomania by Exaggeration or Perversion of the Intellectual Faculties.

Of Imagination. — This name is applied to that faculty by which every thing presents itself to man as an image. It may be perverted, or exalted, in such manner as to form images which have no real existence. It is thus that persons may imagine themselves to see, hear, smell, &c. a variety of things which are not present. These hallucinations are very numerous, and may affect only one or several of the senses. It is difficult to comprehend the extent to which a diseased imagination is prolific in creating images—visions, ecstacies, apparitions, communication with other beings, such as benevolent or wicked spirits, &c. &c. It is in this way that we account for those hallucinations which lead to a belief in modern miracles. Those individuals who formerly used to be burnt as impostors and sorcerers, were mostly only madmen, unhappy lunatics, who sincerely believed that they received visits and had communications with superior beings—with angels or demons, or even with the Deity. M. Levret refers to a monomaniac at Charenton, who believes that every night he is carried into some subterraneous place, where his head and limbs are cut off, and again put on by the aid of magnetism: yet in other respects this patient is reasonable enough.

I have already said that the prevailing ideas of the age, and the particular public circumstances of the period, give their impress to madness, by determining the nature of the hallucination. During the early ages there were martyrs,—in the middle ages sorcerers,—and now, when religious faith has assumed a different shape, we have lunatics of another kind. In truth, it would be tedious and difficult to enumerate all the varieties of insanity which afflict the times in which we live. Even men of great acquirements have believed in sorcerers: Mallebranche, for example, begins one of his chapters by declaring—"Il est indubitable qu'il existe des sorciers."

Monomaniacs are sometimes very ordinary men; sometimes they are of superior intellectual grade. Sublime ideas have sometimes shone out amid the hallucinations of monomania. In this light we must regard the heroic courage of Joan of Arc. But if such hallucinations may inspire great actions, so, also, they may lead to the perpetration of the most atro-

cious crimes: persons have been known to slay and burn in consequence of imaginary voices from within urging them to the deed; and one crime thus committed has led to others, till what began in excitement has ended in madness.

It may happen that the hallucination, when the brain is deranged, does not confine itself to the intellect, but that the powers of motion and sensation become likewise affected. Some fall into a state of complete insensibility, or immobility, and others into convulsions: thence spring those pretended miracles, and that passion for working miracles, which may become epidemic, as has happened in numerous instances. Thus in the eighteenth century there was an epidemic of convulsions before one of the tombs at the Church of St. Medard, at Paris.

During the middle ages monomaniacs were seized with convulsions and shakings; and this was a sort of contagion whence originated the sect called "shakers." In our day these forms of monomania are very rare; nevertheless, we sometimes find men, otherwise healthy, who affirm that they have seen persons, who were really absent, appear before them suddenly, and disappear in the same manner. Nor are we without examples of entire cities being seized with epidemic hallucinations. M. Percy relates that, in 1804, a battalion in garrison in Calabria received orders to proceed to a certain destination. The soldiers made a forced march during very hot weather. On their arrival they were provided with straw in an old deserted convent which was said to be haunted. The soldiers laughed at the story; but at midnight they all ran out, uttering loud cries, and declaring that they had seen the devil enter at the door in shape of a large black dog with long hair; that he ran over them, and made his exit by the opposite door. Such a statement appeared extraordinary and incredible; yet, on the following night, and precisely at the same hour, the soldiers saw, heard, and felt the same thing; but the officers and the surgeons, who had kept themselves awake, saw nothing of the kind. There existed, then, among the soldiers, in this case, an epidemic perversion of the imagination.

Of the judgment.—This may be altered in two ways. 1st, A real sensation having occurred, it may be wrongly interpreted. 2d, A sensation may be experienced which has not really occurred. An old soldier who had lost the sensibility of the skin, at length persuaded himself that he had ceased to exist; and when spoken to, he exclaimed, "Alas! why do you speak of poor Aubert?—he died long ago, at Austerlitz; what you see here, is but his shade." But the judgment may also be disturbed without illusion—without any perceptible trouble of the organs of sense. Thus persons have believed themselves to be dead, or converted into glass, or butter, or something else, although their skin has retained its sensibility. Men have imagined themselves to be women, and *vice versa.*

A monomania has been observed which has appeared at certain epochs, and which consists in the belief entertained by individuals of their being transmuted into beasts of different kinds; as in the example of Nebuchadnezzar. A kind of monomania, formerly very common, was the *lycanthropy;* a belief entertained by patients that they was converted into wolves. Now that wolves are less common, this kind of mania is also become more rare. The subjects of this lycanthropy conducted themselves like wolves: they killed and devoured. A man, who had committed murder, was seized, and brought to trial. He asked them, "Do you not perceive that I am a wolf?" He was answered in the negative. "Then," said he "it is because I have the skin turned inside out." In order to ascertain if it were so, they flayed this unhappy maniac, and the error was discovered when too late. In our times, however, this same lycanthropy is no longer regarded as it formerly was, and now we recognize it as a form of homocidal monomania.

Another perversion of judgment has been described, in which this discordance of ideas has not any relation to the individual himself, but to all the world around him. It is thus that men of transcendant genius have, at a certain period of their lives, been affected with the monomania of imagining that all the world were their enemies. Gilbert and J. J. Rousseau laboured under this delusion. We have also another kind of madness—*lypemania;* in which every thing becomes a source of distress to the patient. This is usually called *melancholia.* It often has for its cause a life of misfortune and disappointment, so that the ideas become sombre and melancholy: this form of the disease, however, may also come on without any evident cause. Often we see persons become melancholy at a particular time of life, even with happiness and prosperity surround them. In this monomania the patients are ingenious in conjuring up imaginary evils.

The *attention* is susceptible of changes from which various morbid phenomena arise. The patients are incapable of fixing their attention on any thing, and there ensues an eccentricity of character and condition bordering on mental alienation: let this go but one degree further, and it becomes

monomania. On the other hand, some persons have their minds continually and pertinaciously fixed on one object; and it is to this that we owe works of genius: but let the object which occupies the attention be futile—let it be accompanied by an inability to judge, or to reflect—and then, in place of genius, the parent of discovery, we have substituted a mere monomania. Often have men of superior minds passed among the vulgar as fools: was not this the case with Archimedes, and the Roman soldier who slew him? and was not Democrates looked upon as a madman by the Athenians?

The *memory* may be modified—altered in such manner that, either suddenly or by degrees, a person may lose the remembrance of any thing save some one object, which becomes to him the universe. There is a very singular perversion of the memory, which consists in the patient remembering every thing except himself: he has, as it were, forgot his own existence, and when he speaks of himself it is in the third person; the words *I*, or *me*, are not in his vocabulary. M. Leuret has related the case of a woman, who, in speaking of herself, always said, "*La personne de moi-meme*."

In the *second division* of this part of our subject, the insanity is dependent upon the exaggeration or perversion of the tastes, pleasures, or passions of the individual. The man who knows how to keep these within due bounds, is wise; he who regulates them ill, tends to madness; and he who cannot keep them within any bounds, is already insane. Each individual contains within him the germs of monomania, for every one is endowed with passions. One of the most violent, and which most frequently tends to monomania, is ambition—a passion which finds its way into all minds and into all ranks of society. Pride, anger, avarice, may also lead to madness. This last particularly begets a form of monomania in which the patient has an irresistible tendency to steal—a vice, unhappily, very prevalent. Gall has collected together many curious instances of this.

One consideration, of a very consolatory nature, in reference to monomania, is, that education exerts a very powerful influence over it; and to this it belongs to regulate or to extinguish those passions on which the tendency to this from of insanity depends. It is with a view of obtaining this desirable result, that an establishment has been formed near Paris, the object of which is to extinguish or counteract those causes which are productive of monomania. A remarkable degree of success has attended this undertaking, the merit of which is due to Dr. Voisin, who was the first to perceive the necessity for, and the importance of, the excellent institution to which I refer.

The *third division* of the subject comprehends the cases of monomania which are caused by the perversion or exaggeration of certain wants or instincts natural to man. Thus there are three great wants or impulses connected with our existence—viz. the exercise of our intellect, of our sensations, and of our powers of motion.

The *intellect* not only requires to be cultivated, but this requires to be done in a particular manner: if it receive a wrong direction, the result will be absurd fancies, and in fact it will pass into monomania.

With regard to *sensation*, it is remarked that men who are worn out—who have exhausted their faculty of sensation, seek for sensual enjoyment in what would be disgusting to others. It is thus that Caligula made his horse a consul, and Nero made Rome be burnt to the sound of music. And that infamous work, *Justine*, is not it the product of a similar insanity? Almost always the persons who are affected with this form of monomania, become monsters whom society has too much cause to dread.

The impulse to *movement* is sometimes met with in persons otherwise quite healthy. Thus we see very reasonable persons, as regards other matters, possessed by an insurmountable desire to run, or to indulge in various preposterous movements. Sometimes a whole population are epidemically seized with the same kind of affection. In the middle ages there raged an epidemic of this kind: bands of men and women formed themselves into circles in the churches, or in the streets, and danced till they fell down with fatigue. An attempt was made to control this by pressure made on the abdomen, from the idea of its being connected with tympanitis; but when the sense of fatigue had passed away, they resumed their ungovernable propensity to dance. Any thing of a red colour exasperated this disease which succeeded to the black plague which ravaged Germany, in which country the singular monomania of which I speak prevailed in 1374. This *chorea*, or St. Vitus's dance of the middle ages, was wonderfully contagious—at the mere sight of others the spectators were seized with it, and patients thus amounted to thousands.

There was another analogous disease, which received the name of *tarentism*. During several ages it prevailed epidemically in Italy. The individuals bitten, or who imagined themselves to have been so, by the tarantula, fell into a state of melan-

choly, from which they could only be roused by music. They longed for the sight of water—a remarkable difference between them and those affected with canine madness.

The instinct of *imitation* is a very remarkable phenomenon. That epidemic character, which is observed with regard to chorea and *tarentism*, must be mainly attributed to it; and we recognise this principle among men in many an act, which is independent of the will. Thus one person stutters because another does so, or one person vomits because he sees another vomiting. In his Treatise on the Nerves, Tissot mentions an individual who imitated the movements of others in spite of himself; if he was restrained — if his limbs were held, to prevent him, he complained of pain in the chest or head. To overcome this propensity, he was under the necessity of turning his back upon whatever society he happened to be in at the time. Sabatier relates that the "Invalids," one of the inmates was found hanged in a particular corridor. Two days afterwards a second was found in the same place, then a third, and even a fourth. The wise precaution of shutting up the corridor was adopted, after which no men hanged themselves. Not many years ago it was the fashion for people to throw themselves from the top of the column in the Place Vendome!

The propensities connected with *alimentation* may also be the source of monomania. I shall only quote the instance of drunkenness. Some men, in other respects sober, are seized at certain moments, and at intervals of longer or shorter duration, with an urgent desire to drink till they become intoxicated. An individual, who was in this predicament, used to deplore his weakness in the intervals of its paroxysms. He died insane. This *dypsomania* may present itself under two forms; either the patient has simply a desire to drink, or this propensity may be carried to a degree of phrenzy. It is scarcely necessary to say that this kind of monomania may produce mental imbecility.

The *reproductive instinct* manifests itself in connexion with the genital organs, and constitutes what is called *erotic* monomania; but besides this, the disease has received particular names according to the form which it assumes. One of these is nymphomania; and this may either exist alone, or in combination with other kinds of monomania. It may also be periodic, or supervene but once: its duration is variable. Young women who have not cohabited are most liable to it, but others are not exempt; and it has even been seen in pregnant females. The cause of this affection is often obscure: sometimes, however, the source of it is apparent, and then, of course, it is more easily dealt with. In certain cases it depends upon inflammation of the genital organs.

The *fourth division* of the subject brings us to the sentiment of self-love—philanthropy — the love of God — patriotism. I have already said that their exaggeration or perversion give rise to monomania of different kinds, and known under different names. I shall commence with the last.

The love of one's native country, carried too far, becomes *Nostalgia;* and it may be such as to occupy every thought. In a less degree, it does not amount to disease; but there is a step beyond which it passes into insanity. This monomania particularly affects the young; and is not very uncommon in those at a distance from their home—as in sailors, soldiers, prisoners, &c. The more advanced the age, the less risk there is of nostalgia. The symptoms differ according to the period at which they are observed. At the commencement of the disease, nostalgia resembles simple melancholia. The patient is indifferent to every thing; but if we speak to him of his native country, the melancholy disappears, and the state of the individual undergoes a great change. When the complaint lasts, it brings on emaciation. In the more advanced period, the nervous disturbance manifests itself in all the organs, and the functions suffer in a corresponding manner. We are often led to suspect inflammation or other mischief in the brain, and frequently witness prostration of strength, delirium, convulsions, &c. With regard to the circulatory system, we have oppressive palpitations, which greatly distress the patient, and which are aggravated by exercise. The breathing also becomes embarrassed, and even stertorous; the digestion is difficult, slow, and attended by vomiting; and yet with all this we find no change of structure. After a time the patient is attacked with fever, and the secretions become diseased; all which is owing to the nervous derangement, and all which frequently disappears on sending the individual back to his native land.

Nostalgia, arrived at its third period, however, becomes attended with anatomical lesions, that which was at first limited to functional disturbance now passing into organic changes; and thus, after gastralgia, we have chronic gastritis. I do not doubt but that tubercles may form in the lungs of those nostalgic patients whose breathing becomes implicated. Independently, too, of the morbid phenomena more especially connected with this dis-

case, other maladies, in themselves more essentially severe, may be conjoined. Nostalgia may end in death.

As to *treatment*, the best certainly consists in the removal of the cause,—that is to say, in the return of the patient to his native country. It is quite surprising how readily the complaint yields under this expedient. Abstraction of blood ought to be cautiously adopted; we must be chary of it, for in nostalgic patients the tendency to debility is very great.

MIDDLESEX HOSPITAL.

REPORT OF CASES OF STRANGULATED HERNIA.

Mr. Tuson presents his compliments to the Editor of the Medical Gazette, and has forwarded the report of some cases admitted into the Middlesex Hospital, and will feel much obliged by their being inserted in an early number of that valuable journal.

10, Russell Place,
July 14, 1836.

Case of large Scrotal Hernia—Operation—Formation of a Hydrocele—Cure.

William Bush, æt. 41, a baker by trade, was admitted at ten o'clock on Friday evening, May 20th, with a large scrotal hernia. He stated that he had been subject to it for the last twenty years, during which period he had worn a truss; that it had been down two or three times before, but that he had always been able to return it; that it had now been down since five o'clock in the afternoon. He had been to a surgeon, who had endeavoured to return it for at least an hour, and who then sent him to the hospital. Upon examining him the tumor was not very tense, but painful upon pressure. He was placed in the warm bath, bled, and the taxis employed. Before his admission he stated that he had been sick, but not since. After he had been in the bath an injection was administered, which remained up, and the taxis was tried again, and failing, Mr. Tuson was sent for at half-past twelve o'clock. He found the tumor elastic, not tense, but painful when pressed; there was tenderness over the abdomen, running towards the umbilicus; he complained of being somewhat sick.

As the symptoms did not appear very urgent, and Mr. Tuson's efforts to return it proving unsuccessful, he ordered him to have another injection, requesting the house-surgeon to watch him, and, in case the symptoms became more severe, to send for him immediately.

At six o'clock he was again sent for, when he found the hernial swelling much firmer, more painful, the pain in the abdomen increased, the patient suffering from frequent hiccough, the pulse small and weak: the injection had come away with some fæces. A consultation was held upon the case, when it was agreed that the operation should be immediately performed. The skin and six layers of fasciæ and condensed cellular substance having been divided, the finger was passed beneath the external abdominal ring, which was divided directly upwards, when the finger could be passed freely along the inguinal canal. An effort was now made to return the contents of the hernial swelling without opening the sac, but without success. The sac was therefore cut through, when some serum escaped; and about sixteen inches of intestine was discovered in a highly inflamed state, being much thickened. The seat of the stricture was discovered to be at the neck of the sac, which had descended about half an inch below the external abdominal ring, and it was divided with the hernial knife, which was introduced upon the finger, when the intestine was carefully returned into the abdominal cavity. The edges of the wound were brought together with adhesive plaster, a compress and roller applied, and the patient carried to his bed. It was not deemed advisable to give him a purgative, as the intestine was in such a high state of inflammation; he was therefore left, to see if he could get a little sleep: at this time his pulse was 58, full, and somewhat hard.

Half-past 12, P.M.—He has been asleep nearly ever since the operation; pulse 85, full and hard; there was some tenderness over the abdomen.

V.S. ad ℥xii. ℞ Cal. gr. ij.; Opii, gr. ¼, 4tis horis sumend.

4 o'clock, P.M.—He was asleep, and therefore not disturbed.

9 o'clock, P.M.—He complained that he had much pain in the belly; was very thirsty; his tongue was dry and brown; pulse 84.

℞ Pulv. Rhei, gr. xij.; Hyd. c. Creta, gr. vj. f. pil. v. statim sumend.

A saline draught, with fifteen drops of liq. antimon. tart. was to be given with each of the pills of the calomel and opium, as previously ordered. The house-surgeon was requested to see him at 12 o'clock, and if the tenderness in the belly was not

better, and the pulse had risen, 20 leeches were to be applied to the abdomen.

May 22d, half-past 8 o'clock, A.M.—Has had much sleep during the night; the pain in the abdomen is less; can bear the hand pressed upon it without calling out with pain. Pulse 85, full, but more compressible; the bowels have not been open; tongue dry and brown; skin hot.

℞ Ol. Ricin. ℥vj.; Mucil. G. Acaciæ, ℥ij.; Syrup. Simplex, ℥ij.; Aq. Carui. ℥iss. statim.

2 o'clock, P.M.—Bowels have been open; there was more tenderness over the abdomen. The pulse had risen to 95, was full and hard.

Hirudines xij. to be applied to the abdomen.

10 o'clock, P.M.—Had slept a good deal; bowels had been open three times; less pain in the abdomen; tongue still brown and dry; pulse 90; complains still of thirst.

℞ Hyd. Submuriat., Pulv. Antim. aa. gr. ij. 6tis horis, cum Haust. Salino.

23d, 9 o'clock, A.M.—Bowels have been open four times; little pain in the abdomen; the tongue is moist but white. Pulse 80.

Continue the medicines.

The wound was dressed; looking very healthy, a little purulent discharge; and the man appears to be going on favourably.

2 o'clock, P.M.—Pulse 80; little pain in the abdomen; tongue dry. Had been asleep nearly ever since he was last seen. Bowels had been opened once, and he begged that he might have a little broth, which was ordered for him, as he appeared going on so well.

9 o'clock, P.M.—Has been very uneasy ever since he took the broth; the skin has been hot, and he has had more fever. His bowels were relieved soon after this visit, when he felt better.

24th, 9 o'clock, A.M. — Passed a very good night; does not complain of any pain. Bowels have been open; pulse 80, tongue furred and dry.

Hyd. c. Creta, gr. vj. statim.

3 o'clock, P.M.—Much the same; bowels open once since he was last visited. The wound was examined: there is some swelling of the scrotum, which appears as commencing from the lower part of the scrotum, and runs up the course of the spermatic cord. When pressure is used a little discharge comes from the wound. A probe was attempted to be passed down to the lower part of the scrotum, but it could not be done. The wound was re-dressed, and a compress and roller applied.

25th.—Passed a good night; no pain, except at the wound, when it is pressed; tongue dry and furred; pulse 85; some heat of skin.

℞ Haust. Salin. ℥iss.; Magnesiæ Sulph. ʒss.; Liq. Antim. Tart. ♏xx. 6tis horis.

Hyd. c. Creta, gr. v. bis in die.

The wound was dressed; more swelling of the scrotum, which had the appearance of the hernia being still down. The swelling having passed along the course of the spermatic cord, and through the external ring along the inguinal canal, upon using pressure a small quantity of discharge came out.

26th.—Passed a very good night; pulse 75; the heat of the skin has gone off; bowels open twice since yesterday; tongue moist, and less furred.

The wound was looking the same; the swelling had increased, and there was a little more discharge at the lower part of scrotum, where there was a sense of fluctuation.

27th.—Going on favourably; tongue clean and moist; bowels have been acted upon; feels hungry; pulse 70.

The wound was looking healthy; the swelling somewhat less; a little discharge could be pushed out; the sense of fluctuation was more distinct at the lower part of the scrotum; no pain. It was dressed as before.

28th.—Going on much the same.

29th.—Still going on well. The swelling is decreasing gradually; at the lower part the sense of fluctuation is increasing, with a degree of hardness round the upper and lateral parts of it. It has the appearance of a hydrocele.

30th.—Going on well; bowels open twice during the day; no heat of skin; tongue natural.

Leave off all the medicine. Middle diet was ordered. The wound looking much the same.

31st.—About the same as yesterday.

June 1st.—Going on well. The wound looking healthy, discharging a little; the swelling up the hydrocele increasing.

2d.—Doing well. The wound discharging a little, and a small quantity of pus can be pressed out; the hydrocele is increasing, quite transparent, and the hardness round it is less.

3d.—Going on well.

4th.—Doing well.

5th.—Says he is very well. Wound nearly healed; some discharge can be pressed out, and the probe passed down to the lateral part of the scrotum, but not down to the lower part or to the hydrocele,

which is now about the size of an orange. There is swelling at the back part of the scrotum, an appearance of the formation of matter.

6th. — Doing well. The hardness is diminishing; the hydrocele and formation of matter increasing.

10th.—Going on well.

12th.—The abscess at the back part of the scrotum was opened; about six ounces of pus escaped. The hydrocele was also operated upon with a trochar, and four ounces of serum escaped. The testicle was situated between the serum and the matter. A poultice was ordered to the abscess.

26th.—Going on well. The abscess has healed; the hydrocele has formed again, but not so large. It was again operated upon; two ounces of serum discharged.

July 4th.—Going on just the same; the hydrocele about the size of a walnut.

July 9th.—The man is well. The wound healed; the hydrocele about the size of a small apple, projecting from the scrotum, quite transparent, and no pain.

Apply Lin. Hyd to it night and morning.

11th.—The swelling is somewhat less; the man's health very good, and he was made an out-patient.

Case of Strangulated Congenital Hernia — Operation — Death — Post-mortem Examination.

Thomas Edwards, æt. 27 years, a porter, was admitted, during the night of Saturday, May 21st, with an inguinal hernia, that had been down since five o'clock in the afternoon. He stated that he had been subject to it for the last seven years, but that it had always returned when he went to bed. He had never worn a truss, and felt little or no inconvenience from it, with the exception of the present time. He was placed in the warm bath, bled, and the taxis employed, but without success. He was then ordered an injection; and the symptoms increasing, Mr. Tuson was sent for at six o'clock on Sunday morning. He found the tumor very tense and painful; there was also great pain upon applying pressure to the abdomen. The man was very restless, had occasional hiccough, and the pulse was small and weak. He called an immediate consultation upon the case, with an idea that the operation should be performed without delay. Mr. Mayo and Mr. Arnott being of the same opinion, it was mentioned to the patient, who consented. Mr. Tuson proceeded to perform the operation. The skin was pinched up and divided, and several layers of fasciæ were cut through upon a director. The sac being exposed, the intestine was seen through it to be of a very dark colour. Upon opening the hernial sac some fluid escaped, and the intestine was discovered in a highly inflamed state, of a dark coffee colour, almost in a gangrenous condition; a large portion of the omentum was situated before it: at the lower and outer portion of the intestine there was a small diverticulum, which, as well as the gut, was filled with fluid. The stricture was then sought for, which was found to be so exceedingly small, that it was difficult to pass a silver director beneath it, which was, however, carefully accomplished, when it was divided to a small extent only, as the intestine arose on each side, and there was great danger of wounding it. The finger was therefore passed beneath the stricture, when it was divided to a greater extent directly upwards, and a small portion more of the intestine discarded. It now became a question whether the intestine should be returned or not; when it was decided, that it should be replaced in the abdomen, which was done, with the exception of the diverticulum, which was left in the sac, the tunica vaginalis testis, it being a congenital hernia. The lower part of the diverticulum was then opened, and a quantity of fluid, resembling black blood, was discharged. The upper and lateral parts of the diverticulum were then attached to the edges of the wound by two sutures, so as to retain it in the sac; the little finger was then passed through the wound in the diverticulum into the intestine, to see that there was a free communication. The lower edges of the wound were then brought together with sutures, and a piece of simple dressing placed upon it, when the patient was removed to bed. Upon visiting him soon after, the pulse was 76, small and weak, and upon passing the hand lightly over the abdomen, he complained of pain.

℞ Magnesiæ Sulph. ʒij.; Mist. Camph. ℥iss. statim.

Half-past 1 o'clock, P.M.—The pulse was 120, full and strong; great tenderness over the abdomen, particularly towards the former seat of the swelling: had been sick, and he had occasional hiccough.

V. S. ad ℥xij. Repeat the draught.

10 o'clock, P.M. — Pulse 130, full but small; great pain over the abdomen; great uneasiness and anxious countenance; begs that something may be given him to make him have a little sleep. Apply twenty leeches to the abdomen.

℞ Ol. Ricini, ʒvj.; Aq. Carui. ℥iss.; Tinct. Opii. m. xxx. statim.

23d.—8 o'clock, A.M. Has passed a very

restless night. Has been sick several times; bowels have not been open; much anxiety of countenance: pain the same over the abdomen; pulse 120.

℞ Haust. Salin. efferv. ℥iss.; Tinct. Opii. m. vj. 4tis. horis sumend.

℞ Hyd. c. Creta, gr. vj.; Pulv. Rhei. gr. xiv. statim.

1 o'clock, P. M.—More tenderness over the abdomen; bowels have been open once; much greater anxiety of countenance; increased restlessness; pulse 140. Some discharge from the wound, of a feculent character, and complains of great pain at one particular spot; sickness continues. Apply thirty leeches.

Continue the Saline and Opium.

3 o'clock, P. M.—Pulse 150; pain the same over the abdomen; the anxiety and restlessness increased; has been sick, and vomiting constantly. Three grains of opium were ordered for the purpose of allaying the sickness, and procuring some little sleep.

10 o'clock, P. M.—He kept the opium on his stomach for a short time, but afterwards vomited, and has done so constantly ever since; much troubled with hiccough; he brings up a yellowish watery fluid, with some bile; pain in the abdomen worse, particularly at the spot above the wound; more anxiety; more restlessness; pulse 180, small and intermittent. He begged he might have a little wine, saying that he fancied it would stop the sickness; he was ordered a little, as he appeared to be sinking fast: he kept it on the stomach for a short time only, and from this time the symptoms increased, the pulse became quicker and more intermittent, and he died at 10 o'clock in the morning.

Post-mortem examination.—Upon opening the abdomen there was not that degree of appearance of inflammation which might have been expected. The intestine towards the wound was not disturbed, but the parts surrounding the wound, and the portion of intestine that had constituted the hernial swelling, were removed, to be more carefully examined, when it was found that the diverticulum communicated freely with the gut; that the intestine had not recovered itself in the least, but had formed adhesions to the adjacent parts of the walls of the abdomen and omentum. At the upper part of the intestine a curious appearance presented itself; the inner or concave part of the convolution of the intestine had adhered together to the extent of an inch, giving the appearance of an intro-susception: the intestine was then carefully opened, when it was found that by the adhesion of this part of the gut, a valve had been formed at the internal part of the intestine, so as to prevent the contents of it from passing onwards. This obstruction, together with the intestine being in the same state as when it was returned, accounted for the symptoms and dissolution of the patient.

Case of Strangulated Congenital Hernia — Operation—Cure.

Joseph Slater, æt. 21 years, was admitted May 23rd, about 5 o'clock in the afternoon. It appeared that repeated efforts had been made during the day to return a hernial swelling situated in the right inguinal region. The man stated that about three years ago he had been ruptured; that it had been down for several hours, but that after he had been bled it had returned; that at the present time it had been down ever since the morning. He complained of tenderness over the abdomen and tumor, which appeared to be a congenital hernia; it was somewhat drawn up towards the inguinal canal, as also was the testicle, it being an inch above the one on the left side. He had been bled and placed in the warm bath, the taxis employed, and an injection administered, before he was seen by Mr. Tuson. When he examined him, he found the swelling not very tense, but painful when pressure was used. There was also pain towards the umbilicus; he was again placed in the warm bath, and Mr. Tuson endeavoured to return the contents of the tumor, but did not succeed. He was then placed in bed, and ordered an aperient, and another injection was administered; the house surgeon was requested to watch him, and if the symptoms increased, to send to Mr. Tuson.

24th. Seven o'clock, A. M. The patient was much in the same state as last evening, with the exception of the pain having increased both in the abdomen, and hernia; he was ordered another injection.

One o'clock, P. M. A consultation was held upon the case; the injection had come away, and some fæculent matter; there was sickness; the other symptoms remained much the same; there was anxiety of countenance. The tobacco injection was ordered, and ice was applied to the swelling, and the surgeons agreed to meet at half-past 4 o'clock, at which time it was found that the tobacco injection had come away about five minutes after it had been given: the hernia was somewhat less by the application of the ice, but the tenderness, the sickness, and the other symptoms, remained the same. The operation was therefore decided upon, to which, however, the patient would not give his consent; he was therefore ordered

another tobacco injection, and a dose of castor oil upon coffee was to be taken immediately.

Nine o'clock, P.M. The coffee and oil had been vomited; the symptoms remained much the same, but the man would not consent to the operation: he was ordered 10 grains of Ext. colocynth. During the night and the following morning the symptoms increased; the patient vomited constantly; the pain in the hernia and abdomen was very severe; the anxiety of the countenance had increased; and at this time he consented to have the operation performed. A consultation was therefore again held, when it was decided that there would still be a chance of his recovery by performing the operation, and therefore it was done immediately, on Wednesday, at 1 o'clock, the 25th of May, upwards of two days after the hernia had descended. The skin was pinched up and divided, and several layers of fascia upon a director, until the sac was arrived at, the lower part of which was then elevated with the forceps, and a small incision made through it, when some dark-coloured serum escaped; a director was then placed beneath the sac, and it was divided to the whole length of its course. A large portion of omentum now presented itself, of a dark venous blood colour, and behind it a knuckle of intestine; the stricture was divided, situated at the external abdominal ring, and the finger was passed along the inguinal canal, until the point of it arrived at the internal ring, where there was a feel of a small band appearing like a second stricture: it was found, however, that the intestine could be returned without dividing it, which was done, and an examination then took place of the omentum. It appeared as if blood had been extravasated between the layers of the peritoneum, and it was of a very dark colour; it was deemed therefore advisable to cut it off, which was carefully done; there were no vessels secured, as there were none that bled; the small portion of omentum that remained at the upper part was left in the sac, and the edges of the wound were brought together with two sutures, and a compress and roller applied, when the patient was removed to his bed. When visited some little while after, he complained of pain in the abdomen; the pulse was 84, small and soft.

℞. Hyd. Submuriat. gr. ij. Pulv. Opii, gr. ¼. 4tis. horis.

After taking one dose he was a little more easy, and felt disposed to sleep; the pulse soon after this rose, and he was bled to ℥xii.

4 o'clock P.M.—Much pain in the abdomen, particularly towards the umbilicus; he cannot bear the hand passed over it, without calling out with pain; it appears also to be swollen. Bowels have not been opened; pulse 120; tongue white.

℞ Hyd. c. Creta, gr. vi.; Pulv. Rhei, gr. xij. stat. Continue the Calomel and Opium.

11 o'clock P.M.—The pain in the abdomen has considerably increased; pulse 140.

App. Hirudin. xx.

26th, 9 o'clock A.M.—The pain continues much the same; the nurse neglected to apply the leeches. The bowels have been open once. Pulse 150; tongue furred; skin hot.

Apply twenty leeches to the abdomen immediately. A saline draught, with a drachm of Sulphate of Magnesia, to be given every three hours.

1 o'clock P.M.—The pain much the same over the abdomen, particularly round the umbilicus; the bowels have not been open since; the skin hot; tongue furred; pulse 140.

Apply 20 more leeches to the abdomen. Continue the Calomel and Opium, and the Saline, as previously ordered.

10 o'clock P.M.—Less pain over the abdomen; can bear the hand pressed more freely upon it; less pain round the umbilicus; tongue furred; pulse 140; bowels have been opened four times; heat of skin much the same.

℞ Haust. Salin. Liq. Antim. Tart. xx♏ 4tis horis.; Cum Pil. Hyd. Submuriat gr. ij.; Pulv. Antim. gr. iij.; Pulv. Opii, gr. ¼.

27th, 9 o'clock A.M.—Bowels have been opened four times; the pain over the abdomen is less; the tongue less furred; and there is less heat of skin. Pulse 110. Discontinue the saline medicine, the calomel, antimony, and opium.

℞ Hyd. c. Creta, gr. iv. 6tis horis. sumend.

1 o'clock.—The bowels have been opened twice since the morning; the pain is less; pulse 110. The wound was examined; it was looking healthy, the central part having healed; the upper and lower part remain open. Some healthy discharge was pressed out, and the wound redressed.

10 P.M.—The patient has been much the same; the bowels have been opened once; the pain in the abdomen is decreasing, he can now bear the hand pressed upon it; pulse 110.

℞ Hyd. Submuriat. gr. ij; Pulv. Antim. gr. iij.; Pulv. Opii, gr. ¼. f. Pil. stat. sumend.

28th, 9 o'clock, A.M.—Passed a very good night; tongue clean; some heat of skin; pulse 110.

℞ Hyd. Submur. gr. j.; Pulv. Antim. gr. ii. 4tis quâque hora.

1 o'clock P.M.—Much the same as when he was last seen. The wound was dressed; it did not look so healthy; a good deal of discharge was pressed out, and some little slough, appearing to be a portion of the omentum that had been left in the sac. The edges of the wound appeared to be shrunk and inflamed.

10 o'clock P.M.—Had been much the same during the day; bowels opened once; pulse 100, and less irritable.

Continue the pills.

29th, 1 o'clock.—Passed a very good night; pulse 90; no pain in the abdomen, except near the wound; tongue clean; feels very hungry; wants to eat some pudding that his mother had made, which the nurse was ordered not to give him. The wound was dressed; the edges were more inflamed; a good deal of discharge was pressed out, and some more slough, clearly a portion of the omentum that had been retained in the sac.

30th, 1 o'clock.—Passed a very good night; says that he is very well, and complains of being very hungry. Bowels have been opened; pulse 85; no heat of skin; tongue clean; the wound was dressed; the edges appear less inflamed; there is also less discharge, and a small portion of the slough came away. He was ordered to have fish diet.

31st.—Going on well; pulse 80; says he is very well; feels no pain except at the wound, which was dressed; it looks more healthy, and there is less discharge.

June 1st. — Going on well; wound healing; discharge less; pulse 80.

Continue the same diet.

2d.—Doing well; wound healing.

3d.—Going on well.

4th.—Still going on favourably.

5th.—Doing well; pulse 70; no pain; says he is well; wound healing.

8th.—He has been going on well since the last report; has had a little attack of bowel complaint, which has been relieved by chalk mixture and aromatic confection.

16th.—Has been going on well; wound not quite healed.

July 9th.—Wound quite healed; no disposition to the hernia descending; has been out in the garden very often, and was discharged cured.

ST. THOMAS'S HOSPITAL REPORTS.

NOTE FROM DR. ROOTS.

To the Editor of the Medical Gazette.

Sir,

In your last number, you have done me the honour to transcribe, from the fourth number of the St. Thomas's Hospital Reports, some clinical remarks of mine, on a case of acute pericarditis, supervening on acute rheumatism; and in doing so, you have also transcribed an error of the press which exists in the said report, and which I shall feel greatly obliged by your doing me the kindness to correct in your next number of the Gazette.

The error is to be found in page 621, line 25. Both in the volume of Reports and the Gazette, the sentence runs thus:—"Now, in the first place, I do not think it necessary, in order to produce this rubbing sound, that there should be lymph effused on both surfaces of the pericardium—that is, on the free and on the investing surfaces; but I do (NOT) think it would be quite sufficient, in order to produce a rubbing sound, that you should have lymph effused merely on the investing surface."

The error of the press in the Reports, you will perceive, by the introduction of the word *not* in the last sentence, has given a diametrically opposite meaning to that I had intended.—I have the honour to be,

Sir,

Your obedient servant,

H. S. Roots.

2, Russell-Square,
July 18, 1836.

IMPROVEMENT OF THE INNISHANNON DISPENSARY;

CONSEQUENT ON DR. BORRETT'S REPORT.

To the Editor of the Medical Gazette.

Sir,

In Dr. Borrett's admirable report of the Irish medical institutions, published in your valuable journal, he, with great justice, particularizes the wretched state of repair and bad situation of many Dispensaries; and amongst the number, that of "Innishannon, in a stable, in a lane off the main street *; where it would have continued to this day, but for the unqualified condemnation of Dr. B. and his colleagues. I am happy to say, that, imme-

* Medical Gazette, present vol. p. 250.

diately subsequent to his visit, a neat and commodious house, in the centre of the village, has been fitted up, where the business of the institution is now conducted, and which affords comfortable accommodation both to the patients and physicians. The old house was held by the subscribers, under an erroneous impression that it was rented, during the continuance of the Dispensary, by the original committee on its first formation; which I assigned to Dr. B. as the reason of its not having been before altered. Had I known Dr. Borrett's address, I should have written to him previous to the issuing of his report, to inform him of the happy change which his visit effected, and for which he has my best thanks, and I am sure those of many of the patients.

I wish very much that Dr. Borrett's report were printed separately, and freely circulated, as his suggestions for the improvement of the conduct of Dispensaries throughout Ireland are worthy the attention of those interested in such valuable institutions.

Hoping for insertion of this communication in an early number, I remain, sir,

Your obedient servant,

RICH. CORBETT, M.D.

Physician to Innishannon Dispensary.

Innishannon, July 12, 1836.

THE TONQUEEN RECEIPT FOR CURING THE BITE OF A MAD DOG.

[WE give insertion to the following paper as it has been forwarded to us.—ED. GAZ.]

The accompanying receipt for hydrophobia is sent to the MEDICAL GAZETTE, in the hopes of drawing the attention of scientific men to the investigation of it.

It has been in the possession of a Baronet's family above a century, and the present possessor happening to lay his hand upon it, wishes, for the sake of the public, that it may be examined into.

July 15, 1836.

Take of musk, the best sort ·· 16 grs.
Of native cinnabar and cinnabar of antimony, each .... 30 grs.

Mix the ingredients, and grind them well together on a china or glazed tile or plate, with a small quantity of brandy, rum, arrack, or proof spirits, so as to make it of the consistence of a soft bolus, to be given as soon as can be after the person is bitten, washing it down with two or three spoonfuls of the same liquor which the ingredients are ground with.

This medicine procures sleep and sweats; the patient therefore ought to go to bed soon after taking it, and may drink of tea, or other small liquor, as sage and balm tea, warm wine and water, as often as he requires it. It is proper to give three doses, leaving one day between each, and three more the next three changes of the moon; and if at any time the least tendency to madness, the hydrophobia (or dread of water) appears, you may give a double dose, and repeat them often till the symptoms are removed; after which you may proceed repeating the single dose as above directed. To children of ten or eleven years of age you may give half as much as to a grown person, and so in proportion to children's age.

This remedy has been found of signal service in putrid or malignant fevers, and the jail distemper, even in extremities, when little or no hopes of recovery are left; in such cases the single dose may be given, and repeated every twelve hours.

This receipt was brought from India by Sir Geo. Cobb, about 150 years since, from the Malay country, where it is contrary to the religion to destroy mad dogs.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

July 21, 1836.

Frederic Gustavus Fowke, Sudbury, Suffolk.
Joseph Hunt, Widness, Lancashire.
Newcome Rogers, Grantham, Lincolnshire.
Matthew Webb, Bank, Salop.
Robert Howard, Elstead.
Robert Wilson, Milnthorpe, Westmorland.
John Lomas, Manchester.
William Calvert Beeston.
William Wilson, Attrincham, Cheshire.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *July* 19, 1836.

Abscess	3	Inflammation	27
Age and Debility	27	Bowels & Stomach	2
Apoplexy	4	Brain	2
Asthma	3	Lungs and Pleura	4
Cancer	1	Insanity	2
Childbirth	1	Jaundice	2
Consumption	44	Liver, diseased	4
Convulsions	32	Measles	9
Croup	2	Mortification	4
Dentition or Teething	5	Rheumatism	1
Dropsy	13	Small-pox	14
Dropsy on the Brain	8	Sore Throat and Quinsey	1
Fever	3	Spasms	4
Fever, Scarlet	3	Stone & Gravel	1
Hæmorrhage	2	Thrush	2
Heart, diseased	2		
Hooping Cough	2		
Indigestion	1	Casualties	10

Decrease of Burials, as compared with the preceding week . . 36

NOTICE.

"R. L."—The packet has been received; but we must complain that the carriage was not paid by our correspondent.

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, JULY 30, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XLIV.

THE only other Endogenous family which I shall notice, is

SMILACEÆ.

Adopting Mr. Lindley's view of the limits of this family, its characters are as follows:—Perianth coloured, inferior, six-parted, with six stamina inserted into it, though occasionally these are hypogynous. The ovary is three celled, the style usually trifid, the stigmas three; the fruit a roundish berry, with albuminous seeds. The plants are herbaceous or under-shrubs, with a tendency to climb; the stems are woody, the leaves reticulated.

I have to notice one genus only—namely, Smilax; which yields us Sarsaparilla and China roots.

Sarsaparilla.

History.—The root known by this name was first brought into Europe early in the sixteenth century. Monardes says it had been known about twenty years before his work was published, which was in 1569. The Spanish term, Zarzaparilla, is derived from Zarza, *a bramble*, and Parilla, *a little vine*, and means a thorny vine.

Natural history.—The roots now known in commerce by the name of Sarsaparilla, are brought from various parts of America—namely, Honduras, Vera Cruz, Brazils, and Lima; their qualities are somewhat different, and their commercial value is unequal. They are all obtained from the genus Smilax, which, in the Linnæan arrangement, belongs to *Hexandria, Monogynia.* It is difficult to determine what species yield the Sarsaparilla of commerce, and still more so to make out the particular plant from which each of the commercial varieties is obtained. The Smilax Sarsaparilla mentioned in the Pharmacopœia, at most yields a portion only of the large quantity imported. Indeed, Humboldt, Bonpland, and Kunth, make no mention of it among the plants enumerated by them as yielding the Sarsaparilla of Spanish America: the two principal species, according to their statements, being Smilax officinalis and Smilax syphilitica. Subsequently it has been stated that the Mexican Sarsaparilla is obtained from a species which has been termed Smilax medica. Thus, then, there are at least four plants from which it is probable our Sarsaparilla is obtained, and they stand as follows:—

1. *Smilax sarsaparilla* of Linnæus.—This is said to be a native of North America, New Granada, Peru, Mexico, and the Antilles. Although indigenous in Pennsylvania and Virginia, yet it is not employed in these countries, and the Sarsaparilla employed there is imported from other places; which leads us to suspect that the plant growing in these countries does not possess the usual properties of Sarsaparilla. Goebel and Kunze state, in their "*Pharmaceutische Waarenkunde,*" that Th. W. C. Martius derives the Honduras Sarsaparilla from the S. Sarsaparilla; but in the "*Grundriss der Pharmakognosie,*" published in 1832, this last mentioned writer ascribes it to the Smilax officinalis; so that I suspect Goebel and Kunze refer to some later publication.

2. *Smilax medica.*—This is the name given by Schlechtendal to a species growing in the forests of Papantla, Tuspan, and Misantla; and which is exported from Vera Cruz.

3. *Smilax officinalis.*—According to Humboldt, this grows in New Granada, on the banks of the river Magdalena, in Bajorque. This is the *Zarzaparilla* of the natives. Large quantities are carried, by Mompox and Carthagena, to Jamaica and Spain.

4. *Smilax syphilitica.* — Humboldt and Bonpland discovered this species in New Granada, on the river Cassiquiare, between Mandavaca and San Francisco Solano. Martius found it in the Brazils, at Yupura and Rio Negro. The Indians collect it all the year round. This plant yields the Lisbon Sarsaparilla.

Properties of Sarsaparilla root.—The roots (as met with in commerce) are usually several feet long, and about the thickness of a writing quill, provided with a number of radicles, externally more or less wrinkled in the longitudinal direction, of a reddish or greyish-brown colour, with an earthy but not remarkable odour, and a mucilaginous, slightly bitterish, sometimes amylaceous, taste. When examined internally, they are found to consist of a cortical and a central part; the latter being termed the meditullium. The cortical portion is in some specimens very thin, and of a brownish or reddish colour: this is the case in the Vera Cruz, Jamaica, and Lima varieties. On the other hand, in many samples of the Lisbon and Honduras varieties, the cortical portion is thick, owing to a quantity of white amylaceous matter forming the internal portion of the cortex. When you break a piece of this kind of Sarsaparilla transversely, this starchy substance escapes in the form of a white powder: when examined by the microscope, I find it consists of small spherical vesicles, which become blue by iodine. The meditullium, or central portion, consists of a ring of woody fibre, containing a central pithy matter, composed principally of starch, and frequently worm-eaten. In fact, the appearance presented by a transverse section of Sarsaparilla is very much like that of an exogenous stem, in having the apparent distinction of bark, wood, and pith, but there are no medullary rays.

Commercial varieties.—Our druggists are acquainted with five kinds of Sarsaparilla, which they respectively term Jamaica, Lima, Honduras, Lisbon, and Vera Cruz. Here is the present price of these kinds in bond (that is, duty unpaid), given me by a wholesale druggist: it is so far interesting, that it shows the relative value which commerce attaches to them:—

	s.	d.
Jamaica, per lb.	3	6
Lisbon	2	3
Honduras..............	1	10
Lima...................	1	3
Vera Cruz	0	10

Though I have samples of these different kinds, selected by an experienced judge, I confess I find it difficult to fix on characters distinguishing them.

1. *Jamaica Sarsaparilla.* — This has received its name by its coming to us from Jamaica, though it is not the production of that island. Guibourt says, that it probably comes from Honduras, and that it is the best Sarsaparilla of which Hernandez speaks. From its strong resemblance, if not absolute identity, with Lima Sarsaparilla, I suspect it is carried to Jamaica from South America, — a suspicion which is confirmed by the statement of Humboldt respecting the Smilax officinalis, already mentioned.

Jamaica Sarsaparilla is imported folded in bundles of about a foot or half a yard long, and four or five inches broad. The roots are furnished with numerous radicles. Its epidermis varies somewhat in its tint: it is always more or less brown, but usually has an orange-red, sometimes a reddish grey, and occasionally a whitish tint. In the sample before me, there is no cortical amylaceous matter. It has been termed *red Sarsaparilla*, partly from the colour of the cuticle, and partly from the reddish tint of the woody portion,—a character which is neither constant nor peculiar to this variety.

2. *Lisbon*, or more properly *Brazilian Sarsaparilla.*—This variety is the produce of the Smilax syphilitica, as already mentioned. The roots are imported in bundles of from three to five feet long, and are not folded. It has fewer longitudinal wrinkles than the Jamaica, fewer radicles, especially at one extremity, a reddish-brown colour, and internally has much cortical amylaceous matter.

3. *Lima Sarsaparilla.*—This is imported in large bundles, of about three feet long, the roots being folded; and in the middle of the bundle is found the rhizome, sometimes with part of the stem. Its other properties appear to me similar to Jamaica sarsaparilla.

4. *Honduras* or *Mexican Sarsaparilla* *.—The roots of this kind of Sarsaparilla are folded into bundles two or three feet long; they are much darker coloured than the kinds already described, being dark brown, and furnished with fewer radicles. Its cortical portion is very amylaceous.

5. *Vera Cruz Sarsaparilla* *.—This is what the druggists term a lean, dark greyish fibrous variety, the roots having a portion

* I ought to mention, that I have not found druggists agreed as to the names given to the Honduras and Vera Cruz varieties. An experienced druggist, on whose judgment I have been accustomed to rely, gave me a sample of what he considered genuine Honduras Sarsaparilla. When I showed it to several others, they declared it to be the Vera Cruz variety.

of the stem remaining. It has very few radicles, and the cortical part of my sample has no amylaceous matter. The roots are of much less diameter than the other kinds.

Chemical properties. — I am acquainted with four analyses of Sarsaparilla,—one by Pfaff, a second by Canobbio, a third by Batka, and a fourth by Thubeuf. Here are the results of the three latter:—

Canobbio's Analysis.

Bitter acrid resin	2·8
Extractive gummy matter	5·5
Starch	54·2
Woody fibre	27·8
Loss	9·7
	100·0

Batka's Analysis, (1834.)

1. A crystalline matter (*parallinic acid*).
2. A colouring crystalline matter.
3. An essential oil.
4. Gum.
5. Bassorin.
6. Starch.
7. Albumen.
8. Extractiform matter.
9. Gluten and gliadine.
10 Fibrous and cellular tissue.
11. Lactic acid.
12. Acetic acid.
13. Salts—namely, chlorides of calcium, potassium, and magnesium, carbonate of lime, oxide of iron, and alumina.

Thubeuf's Analysis, (1831.)

1. A crystalline substance (*salseparine*).
2. A colouring matter.
3. A resinous matter.
4. Ligneous matter.
5. Starch.
6. Chloride potassium.
7. Nitrate potash.
8. Fixed, aromatic thick oil.
9. Waxy substance.

Pfaff's analysis will be found in Duncan's Dispensatory.

Berzelius says, 100 lbs. of the roots yield about one ounce of a volatile oil; and Rose states, that he found an uncrystallizable sugar in this root.

Active principle of Sarsaparilla.—What is the active principle of Sarsaparilla? M. Galileo Palotta was the first to make this known, in 1824: he called it *pariglinc.* About the same period, another Italian physician, M. F. Folchi, thought he had discovered a new principle, which he named *smilacine*. In 1831, Thubeuf announced that he had obtained a new substance, to which he gave the name of *salseparine*, and which I suppose we may Anglicise into *sarsaparilline*. In 1833, Batka, a German chemist, stated, that the active principle was an acid, which he termed *parallinic a id*. Lastly, in 1834, Poggiale announced the smilacine of Folchi, the salseparine of Thubeuf, and the parallinic acid of Batka, to be the *parigline* of Palotta: the latter chemist ought, therefore, to be considered the discoverer of the active principle of Sarsaparilla. Poggiale, however, adopts the name given to it by Thubeuf, as being the most appropriate.

1. *Of Sarsoparilline, or Parigline.*

Seat.—It has been frequently asserted that the active principle of Sarsaparilla resides in the cortical portion only of the root. Poggiale, however, asserts that the medullary part is not inert.

Properties.—The following are the properties of Sarsaparilline, according to Thubeuf:—It is a white, crystallizable, odourless, and, in the anhydrous state, almost tasteless substance; very slightly soluble in cold water, more so in boiling water, and depositing from the latter by cooling. Its solution has the bitter acrid taste of Sarsaparilla, and froths on agitation. The solution has no alkaline reaction on colouring matters (Poggiale says it slightly reddens turmeric, and makes syrup of violets green). It is soluble in alcohol, and, according to Poggiale, also in æther and oils. It does not combine with acids to form salts. Strong sulphuric acid colours it red, then violet, and lastly yellow. It dissolves in cold and pure hydrochloric acid; the solution becomes red, and afterwards gelatinous, when heated. It is soluble in strong nitric acid: if the solution be heated, nitrous gas escapes; and by evaporation, a solid residuum is obtained, which is soluble in boiling water, from which it precipitates in white flocks as the liquid cools.

Composition. — Sarsaparilline has been analysed by Poggiale and O. Henry. The following are their results:—

Poggiale's Analysis.

8 atoms Carbon 8×6	48·
7½ atoms Hydrogen	7·5
3 atoms Oxygen 8×3	24·
1 atom *Anhydrous Sarsaparilline*	79·5
1 atom Water	9·0
1 atom *Hydrated Sarsaparilline*	88·5

O. Henry's Analysis.

9 atoms Carbon 9×6	54
9 atoms Hydrogen	9
3 atoms Oxygen 8×3	24
1 Sarsaparilline	87

Effects.—Some experiments have been made by Dr. Cullerier on the effects of sarsaparilline, furnished by Thubeuf; but though it appeared to possess activity, its efficacy has not been determined, in consequence of the small number of trials made with it. According to Palotta, pariglinc, in doses of from 2 to 13 grains, acts as a debilitant, reducing the circulation, sometimes producing constriction of the œsophagus, and exciting nausea and diaphoresis. He thinks it might be useful in chronic rheumatism, skin diseases, &c.

The *physiological effects of Sarsaparilla root* are not very obvious. Taken in the usual medicinal doses, it sometimes acts as a diaphoretic or diuretic, and in large doses I have seen it occasion nausea and vomiting. It is evident that the large quantity of starch which it contains renders it nutrient and demulcent, and the bitter extractive matter present will give it tonic properties. Under its continued use, various disordered conditions of the system have subsided (such as venereal and cutaneous diseases), but the effects of the remedy on the corporeal functions are not very obvious.

Uses.—1. *In venereal diseases.* Sarsaparilla was originally imported into Europe as an anti-venereal remedy of great power, and is at the present time largely used as such by practitioners. I am aware there are some who deny its efficacy, and it must be admitted, that the mere disappearance of venereal diseases under its use is, in many instances, insufficient to establish its usefulness; since, in the first place, it has been proved, that all forms of these diseases may, and not unfrequently do, spontaneously disappear; and, secondly, practitioners rarely confine their treatment to Sarsaparilla merely, but usually conjoin other remedies, such as mezereon, sassafras, mercury, acids, or alkalies. I have, however, seen a few cases which were treated solely by Sarsaparilla, and which satisfied my mind that it is a beneficial remedy. Sarsaparilla has also been used in chronic rheumatism and gout; likewise in obstinate skin diseases.

Administration.—It may be given in the form of powder, in doses of from half a drachm to two drachms. There are, however, two objections to its use in this form, namely, that the powder is frequently adulterated, and secondly, that it is very apt to nauseate the stomach. Another, and a better, mode of administration, is in the form of *infusion* or *decoction.* We have no formula for the infusion in the Pharmacopœia, but it may be made of the same strength as the *decoction.* At one time it was supposed that Sarsaparilla required long boiling to extract its active principle, and hence the directions given for the manufacture of the decoction; but it has been subsequently asserted by several writers, that boiling injures its properties by volatilizing or decomposing its active principle—and hence the infusion has come into use. I confess I am not convinced of the injurious nature of the process,—since I have found the *extract* prepared from the decoction an efficacious preparation. Indeed, I prefer giving the extract of sarsaparilla, dissolved in water, to other preparations. To be useful, I think it should be given in large doses, such as half a drachm or a drachm, three times a day.

Smilax China.

History.—This root was introduced into Europe, in 1535, as an infallible remedy against the venereal disease. It obtained great reputation in consequence of the benefit which the Emperor Charles the Fifth derived from its use in gout.

Natural History.—Two kinds of China root are described,—one called *Radix Chinæ orientalis*, which comes from the province of Onansi, in China, and is the produce of the Smilax China of Linnæus,—the other termed *Radix Chinæ Americanæ*, and which is obtained in Mexico from the Smilax Pseudo-China. Martius tells us, that the root of the Smilax glauca is also used in the Brazils.

Physical properties.—I am only acquainted with one kind of China root, and which is brought from the East Indies or China, and possesses the following properties:—it occurs in large ligneous knotty pieces, of from three to eight inches long, and an inch or two thick. Externally, it has a greyish brown colour, and internally, a light flesh or yellowish white colour. It is inodorous, and has a slightly astringent taste.

Chemical properties.—Hitherto it has not, as far as I know, been analysed. But it appears to consist of extractive, tannin, colouring matter, and starch.

Physiological effects.—Its effects are not very obvious. It is said to be diaphoretic, and to tinge the sweat.

Uses.—It has been recommended in the same cases as Sarsaparilla; such as syphilis, rheumatism, gout, skin diseases, &c.

EXOGENS, OR DICOTYLEDONS.

These are sexual and vascular plants: their stems consist of three parts (namely, bark, wood, and pith, placed one within the other, the pith being innermost), and are furnished with medullary rays. The stems increase in thickness annually by the deposit of a layer of new wood on the outside of the old wood, and of a layer of new cortical matter on the outside of the new wood, but on the inside of the last

formed cortical layer. From this mode of growth, they are called *exogeneæ*, from εξω, *without*, and γενναω, *to produce.* The leaves, also, furnish means for distinguishing these plants from endogens; they are usually opposite and articulated to the stem, and their veins are branching and reticulated. The number of floral parts is often five or a multiple of this, and hence a considerable number of these plants are pentandrous or decandrous. The embryo usually contains two opposite cotyledons of equal size, and hence the term *dicotyledoneæ*, from δις, *twice*, and κοτυλη, *a cavity.* Some plants of this division, however, are furnished with more than two cotyledons; and these are sometimes termed *polycotyledons.* As examples of the latter I may instance the family Coniferæ. In germinating, the radicle and plumule merely elongate, not having any sheath to penetrate,—hence these plants are termed *exorrhizæ.*

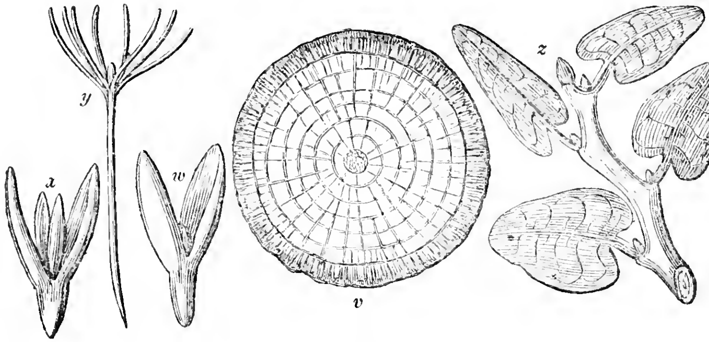


FIG. 119.—*Exogens, or Dicotyledons.*

(*v.*) Transverse section of a dicotyledonous stem, shewing medullary rays, and the distinction of bark, wood, and pith.
(*w.*) Embryo with two cotyledons (*Dicotyledons*, properly so called.)
(*x.*) Embryo with four cotyledons. } (*Polycotyledons*)
(*y.*) Embryo with many cotyledons, as coniferæ. } (*Polycotyledons*)
(*z.*) Stem and leaves of a dicotyledon, shewing the articulation and the reticulated veins of the leaves.

Exogens, or Dicotyledons, form two classes in Mr. Lindley's arrangement—namely, the Angiospermous Exogens, and the Gymnospermeæ. I shall begin with the former.

Angiospermous Exogens contain numerous important families, or orders: the first I shall notice, is

RANUNCULACEÆ.

Characters.—The plants of this family are mostly herbs, very rarely shrubs; the greater part of them are natives of Europe and North America, a few only being found in India, South America, and Africa. The calyx consists of from three to six hypogynous sepals, which are in some petaloid, as in Aconitum. The corolla is polypetalous, the petals being hypogynous, frequently nectariferous, and sometimes variously deformed. These two last characters are well shown in Aconitum Napellus. The stamina are numerous and hypogynous, and hence most of the genera belong to the Linnæan class *Polyandria.* The anthers are adnate, and burst by longitudinal slits. In some of the genera the stamina are frequently metamorphosed into petals, as in the genus Ranunculus, forming the flower called the double ranunculus. The carpella are numerous, distinct, and seated on a torus. The fruit consists usually either of akenia, or follicles. The albumen of the seeds is horny, the embryo minute; the leaves are sheathing.

Properties.—These plants are for the most part more or less poisonous, some of them being merely acrids, others possessing in addition narcotic properties. Their active principle is of two kinds; one is an acrid volatile substance, the other is of an alkaline nature. Thus we have Delphia and Aconitina, two vegetable alkalies obtained from this family. As already mentioned, the effects of Ranunculaceæ closely approximate to those of Melanthaceæ, described in the last lecture.

Aconitum ferox.

I notice this before the officinal species, because it seems to possess the poisonous properties of the family in the highest degree.

History. — The term *Bisch* occurs in Avicenna, and indicates a poisonous plant believed to be a species of Aconitum. At

least Mentzelius so considered it in 1582. Dr. Hamilton, in his "*Account of the Kingdom of Nepal*," noticed the *Bisch*, or *Bikh*, poison, used by the Gorkhalese, and regarded it as a species of Caltha; but my friend, Dr. Wallich, has shewn it to be an *Aconitum*, to which, on account of its virulent properties, he has given the specific name of *ferox*.

Physiological effects.—Some years since, at the request of Dr. Wallich, I undertook a series of experiments to determine the nature of the effects of the root of this plant. As the specimens which I employed had been in Dr. Wallich's possession ten years, we may fairly infer they had lost part of their poisonous properties, although they were still very energetic. The whole details of the experiments were published in the "*Edinburgh Journal of Natural and Geographical Science*," for July 1830, and an abstract of them is contained in the second part of Dr. Wallich's splendid work "*Plantæ Asiaticæ Rariores*." The following are the inferences drawn from the experiments alluded to:—1st. "That the root of the Aconitum ferox is a most virulent poison. 2dly. That both the spirituous and watery extracts are poisonous, the former more so than the latter. 3dly. That the poison exerts a local action on the nerves of the part to which it is applied. 4thly. That its remote action is on the nervous system. 5thly. That the intensity of this remote action is in proportion to the absorbing powers of the part to which it is applied. 6thly. That the immediate cause of death is asphyxia. 7thly. That this poison diminishes the irritability of the heart. 8thly. The symptoms produced by it were difficulty of breathing, convulsions, and paralysis of the extremities."

To this account I shall only add, that one grain of the alcoholic extract introduced into the peritoneal sac, killed a rabbit in 9½ minutes; and that a minute portion of the spirituous infusion applied to the tongue produced numbness, tingling, and paralysis of the muscles of the velum. The numbness continued for 18 hours.

Uses.—Dr. Wallich told me that it was employed in India in cases of rheumatism.

During the late wars in Nepal an attempt was made by the Goorkas to poison the British army and cattle, by throwing the bruised root into the wells and reservoirs: the attempt, however, was very soon discovered, and effective precaution taken to prevent the occurrence of any serious mischief.

Aconitum Napellus.

Characters.—This plant is cultivated in almost every garden, but is rarely found growing wild in this country, and hence is regarded as a doubtful native. Its root consists of numerous fibres, arising from an underground stem, or rhizome. Its stem, in the native state, is usually two or three feet high, but in the cultivated varieties often attains a height of four, five, and even six feet. The leaves are alternate, divided to the base into five lobes, which are cut into numerous, acute, somewhat revolute segments. The inflorescence is a raceme; the calyx is petaloid, (and hence is often improperly termed a corolla) composed of four sepals, the uppermost one being arched, and forming a kind of hood, whence one of the names of the plant (Monkshood): the corolla consists of two curiously deformed petals, usually denominated peduncled nectaries: the stamina are numerous and hypogynous; the carpella are distinct, usually three; the fruit is a follicle; and the seeds are albuminous. In the Linnean arrangement it belongs to *Polyandria Trigynia*.

Part used.—In this country the leaves are the parts employed, but the roots being very active, might also be used.

Chemical composition.—The Aconites, like some other ranunculaceous plants, are supposed to contain two active principles, one of an acrid nature, the other operating as a narcotic. The latter possesses alkaline properties, and has been termed Aconitine; and as it has been used in medicine, will require a little further notice.

Physiological effects of Aconitum Napellus.—Taken in *small repeated doses*, aconite acts as a sudorific, and sometimes as a diuretic. Occasionally it diminishes sensibility and relieves pain, but this is not its usual effect. Sometimes it gives rise to an eruption of a pustular nature. In *large doses* its operation is that of an acro-narcotic poison, the usual symptoms being vomiting and purging, burning in the throat, colic, sometimes abdominal swelling, pain in the head, disordered sensations, convulsions, and delirium or stupor, terminating in death. When chewed it increases the salivary secretion, and causes numbness of the lips, cheeks, and gums. Applied to the skin it sometimes vesicates. On examining the bodies of those who have died from its use, the alimentary canal has been found inflamed.

Uses.—It has been employed in some affections of the nervous system, namely, paralysis and epilepsy; in rheumatic or neuralgic pains (its beneficial effects in these cases depending partly on its sudorific operation, partly on the influence it exerts over the nervous system); in dropsical affections it has been used on account of its diuretic operation; in chronic skin diseases; in affections of the glandular

system; in intermittent fevers; and, lastly, in uterine complaints, to diminish pain.

Aconitina.

History.—*Aconitine*, or *Aconitina*, was first detected in the genus Aconitum, by Peschier, of Geneva. It was afterwards recognised by Brandes, Pallas, and Hesse.

Properties.—It is a whitish, incrystallizable, granular solid, or a colourless, transparent, vitreous mass. It is inodorous, but has a bitter acrid taste; this acridity, however, is said to depend on some principle in combination with the aconitina. It is fusible, but not volatile; it is slightly soluble in water, but very soluble in alcohol and æther. It dissolves in nitric acid, forming a colourless solution. Sulphuric acid colours it first yellow, then red. It saturates acids, and forms incrystallizable salts.

Physiological effects.—When the alcoholic solution or ointment, presently to be described, is rubbed into the skin, in a minute or two heat, tingling, and pricking, are produced: these symptoms are followed by numbness, and a sense of weight in the part: which effects last from two to twelve hours. Dr. Turnbull says, in no one case hitherto observed has it produced a greater degree of vascular excitement than might easily be accounted for by the friction itself. In one instance, however, I saw one application produce vivid redness.

A fiftieth part of a grain kills a sparrow in a few minutes: one-twelfth of a grain destroys a small bird with the rapidity of lightning.

Uses.—Dr. Turnbull and others have employed aconitina externally, either in the form of tincture or ointment. The *tincture* is formed by dissolving one or more grains of aconitina in a drachm of alcohol. The *ointment* is prepared by rubbing two grains of aconitina with six drops of alcohol, and then adding one drachm of lard. The quantity of aconitina may be augmented to four or five grains.

This ointment has been used in rheumatic and neuralgic cases, the part affected being rubbed with it until the effects before described take place: the frictions should be repeated three or four times a day. Further experience is wanting to prove the efficacy of the remedy. Its high price (1s. 6d. per grain) is an obstacle to its extended use.

Helleborus niger.

This is a perennial plant, a native of Switzerland, but cultivated in our gardens under the name of the *Christmas rose.* It belongs to *Polyandria, Polygynia*, of Linnæus. The root (properly so called) consists of numerous cylindrical fibres attached to an underground stem or rhizome (usually termed the root): this part has an acrid bitter taste. Fenuelle and Capron have analysed it, and discovered an acrid fatty substance, a resinous substance, a volatile oil, an acid analogous to the crotonic, and some other substances not deserving of notice. Like many other ranunculaceæ, black hellebore possesses a twofold operation: it acts as a local irritant, and exerts a specific influence over the nervous system. It has now fallen into almost total disuse; but it has been employed as a drastic purgative in mania, dropsies, and skin diseases, and as an emmenagogue in uterine complaints.

Helleborus orientalis.

This plant is described and figured in the *Flora Græca* of Dr. Sibthorp, as the real ελλεβορος μελας of Dioscorides. This, doubtless, is the plant used (about 1400 years B. C.) by Melampus, as a purgative in mania, and which from this circumstance derived its name *Melampodium.* Melampus, we are told, learned its effects from observing his goats eat of it when sick; and hence his recommendation of it when applied to by King Prœtus, whose mad daughters were running about the woods naked, and imitating the cries of cattle. The remedy seems to have been most successful in its operation, and to have been well paid for, since it is stated that Melampus and his brothers obtained each, one of the maidens in marriage, with a dowry of one-third of the king's dominions. This is the first instance recorded of the use of a purgative.

Helleborus fœtidus.

The effects of this plant are very analogous to those of the black hellebore. The leaves, which are the officinal part, are emetic and purgative: they have been strongly recommended as a vermifuge against the large round worm (ascaris lumbricoides.)

Helleborus viridis.

This, though an officinal substance, is rarely or never employed. It is said to possess the same properties as the other species.

Delphinium Staphisagria.

This plant is a native of the South of Europe. The only part of it used in medicine is the seeds: these are of a triangular form, wrinkled, brown externally, and white internally.

Brandes has published an elaborate analysis of them, from which it appears that the active principle is an alkali, called *Delphinia*, and which is one of the substances recently tried by Dr. Turnbull.

Physiological effects.—The effects of the

stavesacre seeds, when taken in large doses, are those of an acro-narcotic poison: in smaller quantities they act as emetics and cathartics.

Uses. — The seeds have been principally employed to destroy cutaneous parasites, and hence the name given them by the Germans, *Läusesaamen.* They are used either in the form of powder or ointment.

CLINICAL LECTURE

ON

DISEASES OF THE SKIN.

By J. P. Litchfield, M.D.

Physician to the Infirmary for Diseases of the Skin, &c. &c.

Classification—Acarus Scabiei.

Gentlemen, — It is, perhaps, desirable that I should preface the observations which I have to make on some cases now under treatment in this Infirmary, by a few general remarks upon the classifications of cutaneous diseases, adopted by modern authorities. I consider this the more necessary on the present occasion, because these diseases are by no means comprehensively described in the lectures delivered at our medical schools. Indeed, I have heard of teachers who affect to entertain contempt for diseases of the skin, as separate objects of study, and who regard them as peculiarities altogether secondary, and scarcely worthy of a place in our nosological tables. I am convinced, however, that this feeling does not exist in the great mass of our profession, but that, on the contrary, a growing interest is felt for this somewhat neglected branch of human pathology.

Many diseases of the skin were described by the Greek, Arabian, and Latin physicians, but no exact attempt was made at classifying them until about 200 years since, when Mercuriali, in Italy, and subsequently Turner, in England, applied themselves to the subject. They agreed in dividing skin diseases into two classes: first, those which affect the head, and secondly, those which affect the trunk and extremities. Turner also proposed a further ground of distinction, according as the diseases were produced by internal or external causes: these arrangements were, however, obviously too imperfect and unscientific to meet the necessities of the case; as was also the proposition of Retz, to divide cutaneous diseases into acute and chronic: it became, therefore, necessary to discover some other mode of classifying skin diseases; and as there is no class of human infirmities whose signs and characters are so obvious to the external senses, Plenck proposed to separate them into groups, according to the appearances which they present.

Willan's classification is founded, like that of Plenck, upon the external character and appearance of the diseases. It consists of eight classes—viz.

Papulæ.	Vesiculæ.
Squamæ.	Pustulæ.
Exanthemæ.	Tuberculæ.
Bullæ.	Maculæ.

The principal objections urged against this classification are, that Willan has based it upon the primitive forms of the different eruptions; and as the eruption changes its nature in the course of its development, the disease may be properly placed in different classes, during various stages of its progress. In this respect, therefore, the system may be said to want that constant and fixed character which is essential to its perfection and utility.

In his first classification, M. Alibert partly adopted the views of Mercuriali and Turner, by dividing the diseases into two groups, according as they are developed on the head or the body. To the diseases of the head he gave the generic name of *teignes;* to those of the body, *dartres.* To this general division he added that of species and varieties; the distinctive characters of which he found, sometimes in the different states of inflammation, sometimes in the products of the disease. Thus, if an eruption was accompanied by a scaly desquamation, it was ranged under the head *dartre squammeuse.* To this he also added the name of *humide orbiculaire,* &c. if the disease was habitually accompanied by a serous exhalation, or presented the appearance of a ring, or circle. So, again, when crusts were present, he grouped the disease around a common species, to which he gave the name of *dartre crustaceæ.* He also created a number of different sections for those diseases, which could not with propriety be grouped around the different orders; so that, independently of *teignes* and *dartres,* of which he describes twelve species, he also gives the history of nine others—viz. des pliques, ephelides, cancroides, lepres, pians, ichthyoses, syphilides, scrofules, and psorides. This classification of Baron Alibert was obviously too extensive to be useful in simplifying the study of skin diseases. It also possesses the fault of not attaching itself to any common centre, and of exposing those who adopt it to the risk of separating diseases identical in their symptoms, but having their situation in different parts of the body.

Conscious of the defects of this classification, its accomplished author has recently abandoned it for another, in which,

in imitation of his illustrious countrymen, Cuvier and Jussieu, who have so happily classified the subjects of Natural History, he has collected together all the genera which bear a close resemblance to each other, and has formed them into natural groups, so as to produce a *tree of medical knowledge*, in which the varieties of cutaneous disease are made to form the roots or the branches, at the will of the medical naturalist.

M. Alibert introduced his new classification with the following observations:—" Nurtured in the doctrines of the great masters, Linnæus and Jussieu, I wished, in my turn, to classify the facts which I observed in the treatment of skin diseases at the hospital of St. Louis; I have, therefore, delineated a genealogical tree, which presents in regular order the groups, the genera, and the species of the family of dermatoses. Upon its branches I have placed a nomenclature, required, as I believe, by the necessities of the epoch in which we live. I have adopted, in my arrangements, the method of botanists; and have conformed to the view expressed by Sydenham in the admirable preface of his work. This method consists in acquiring a complete knowledge of the symptoms of elementary phenomena, and the laws on which the diseases are organized. Be assured that nothing is more fixed and constant than the morbid productions which are the object of the philosophical classification now proposed. These productions no more change than the fruits of a tree, or the common and necessary effects of any process of vegetation. Since the human race is subject to disease, lepra, herpes, favus, pemphix, &c. have ever shewn themselves in the same characters. The points in which these eruptions resemble or differ from each other are immutable in each group and in each family. It is therefore easier than most persons would imagine, for an individual engaged in a methodical distribution of diseases to establish their division into groups, genera, species, and varieties. The groups of diseases may be compared to tribes of animals; morbid affections must be defined by great leading traits; but the genera are more circumscribed, and are particularly destined for the collecting of species—and these are determined by characters the most constant and marked; lastly, the varieties are arranged according to certain changes of colour, form, temperament, idiosyncrasy, age, climate, predisposition, or other accidental circumstances which invariably influence this class of diseases."

According to this arrangement, M. Alibert has divided skin diseases into twelve groups, which include in all 141 varieties; he has also made considerable changes in the nomenclature, adopting many new terms from the Greek and Arabian physicians; indeed, it has been regretted, that instead of imitating the precise language and short terms of naturalists, he has employed the imaginative and brilliant style natural to the author of the " Physiology of the Passions," but which renders it difficult, beneath the tropes and figures with which the work is surcharged, to ascertain the precise meaning of the author.

The classification of Mr. Plumbe is based on the morbid anatomy of the parts affected. It includes—

1. Diseases which obtain their distinguishing characters from local peculiarities of the skin—as acne, lupus, noli me tangere, herpes exedens, sycosis, porrigo.

2. Diseases marked by chronic inflammatory action of the vessels, producing the cuticle, &c. &c.—as lepra, psoriasis, pityriasis.

3. Diseases exerting probably salutary influence on the system, originally produced by, and usually symptomatic of, deranged digestive organs, and characterized by active inflammation—as porrigo favosa, strophulus, lichen, prurigo, urticaria, herpes, furunculus.

4. Diseases of a mixed character, &c.—as impetigo, scabies, eczema.

5. Diseases dependent on debilitated and deranged states of the system, and consequent diminished tone of the vessels of the cutis—as purpura, aphthæ, pemphigus, pompholyx, ecthyma, rupia, erythema nodosum.

6. Fungoid diseases of the cutis and cuticle — as icthyosis, warts, erythema, roseola, venereal eruptions, psoriasis, &c.

With reference to this classification, and to that of Mr. Dendy, which is founded upon nearly the same system, the French reviewers, Messrs. Cazeneuve and Schedel, remark, " that it is nearly impossible in the present state of our knowledge of the tissues in which the diseases are situated, to form a correct classification on this plan; it is even probable that the only classification of skin diseases which will be entirely free from reproach, will be that which shall have for its basis the especial seat of each elimentary lesion; and that so long as the anatomy of the dermoid system shall be wanting in accurate and acknowledged *data*, we shall never have a perfect classification of diseases of the skin." They add, " In the present state of our knowledge, is it not a vain and hopeless effort to attempt to group such numerous species according to the causes which produce them? Mr. Plumbe, who wished to adopt this singular classification, would rather have added new difficulties to those which already exist in this branch of pathology, if a work formed upon such a basis could

possibly exercise any influence upon the science."

M. Rayer's classification is founded upon that of Willan, which he designates as the most accurate and methodical at the present time. M. Biett has also adopted the arrangement of Willan, with the exception of certain modifications, and the addition of six orders, which he thinks could not with propriety be referred to any of the previous classes. I subjoin the arrangement of M. Biett, which I conceive, in the present state of our knowledge of the structure of the skin, and the functions of the dermoid system, to be the most useful and correct.

Ord. 1.—Exanthemata.

Erythema.	Rubeola.
Erysipelas.	Scarlatina.
Roseola.	Urticaria.

Ord. 2.—Vesiculæ.

Miliaria.	Herpes.
Varicella.	Scabies.
Eczema.	

Ord. 3.—Bullæ.

Pemphygus.	Rupia.

Ord. 4.—Pustulæ.

Variola.	Acne.
Vaccina.	Mentagre.
Ecthyma.	Porrigo.
Impetigo.	

Ord. 5.—Papulæ.

Lichen.	Prurigo.

Ord. 6.—Squamæ.

Lepra.	Pityriasis.
Psoriasis.	Icthyosis.

Ord. 7.—Tuberculæ.

Elephantiasis of the Greeks.	Molluscum.
	Frambæsiæ.

Ord. 8.—Maculæ.

Colorations.	*Discolorations.*
Bronze tint.	Albinism.
Ephelides.	Vitiligo.
Nævi.	

Ord. 9.—Lupus.
Ord. 10.—Pellagre.
Ord. 11.—Syphilitides.
Ord. 12.—Purpura.
Ord. 13.—Elephantiasis of the Arabs.
Ord. 14.—Keloide.

The differential diagnostic of diseases of of the skin, is, without doubt, one of the most important parts of their study. M. Biett especially insists upon this point, in his clinical visits at the Hôpital St. Louis, as I can fully bear witness, after an attendance of more than two years, at different intervals, on his practice at that institution. Indeed, it is obviously impossible to form an opinion as to the mode of treatment until the nature of the disease is accurately and carefully defined; and yet how constantly do we find this precaution neglected, and a host of diseases collected together under the name of scrofulous eruptions, or some other loose and ridiculous appellation. Occasionally we see the greatest uneasiness produced in families by the medical attendant asserting a disease to be the itch, which turns out to be a lichen, a prurigo, or an eczema; or by pronouncing a disease to be of a venereal character, which is not so, treating it with mercurials, and in this way aggravating the affection, or still worse, by allowing a syphilitic affection, which has been mistaken, to continue its ravages.

We see, then, at once, the importance of accurately studying diagnosis; and it is here that I may venture to offer some general rules, founded upon the practice of M. Biett, and adopted in this institution. In the first place, we should endeavour to distinguish the primitive elementary lesion, however it may have been de-naturalized, and masked by morbid changes. After this point is ascertained, it will only be necessary to compare the supposed disease with those which acknowledge the same elements, and belong to the same class, as itself.

Thus, for instance, the patient I now present to you has in the internal parts of the arm, in the intervals of the fingers, and upon the chest and abdomen, small serous collections, transparent at the summit, distinct, pointed, and accompanied by itching. On examining the eruptions with attention, we shall soon be convinced that this collection does not contain pus,—that it is not a solid resisting elevation, nor a circumscribed induration, still less a papulous elevation, covered with a dry and hard scale,—that it does not disappear under the pressure of the finger,—in short, that it is neither a pustule, a papule, a tubercle, a squamous disk, nor an exanthematic spot, but really a vesicle. Having ascertained thus much, we have next to decide to which of the vesiculous affections this lesion belongs; and proceeding still by the same method, we shall soon arrive at a positive diagnosis. It is obviously neither varicella nor miliaria; for each of these diseases is accompanied by general phenomena, and, moreover, the vesicles in the one are globular and innumerable, and in the other more extended and inflamed. It is not herpes; for that disease is characterized by an assemblage of vesicles, in groups, upon an inflamed base, but here they are separate, and scattered about.

There remain, then, only eczema and scabies. The vesicles of eczema are flattened at the summit, but here they are pointed; the vesicles of eczema are usually

assembled in greater or less number, here they are distinct and separate: the disease, therefore, is *scabies*.

I have preferred choosing a very simple example, but occasionally the diagnosis is more difficult; and the itch itself, which under ordinary circumstances is readily recognised, may be rendered obscure by accidental circumstances, and by none more than the action of the nails: but even then we find a variety of means, which enter into more particular description, and by the aid of which we arrive at the discovery of the true nature of the malady. These means principally consist in the position of the eruption, in the appearance of its accidental forms, in its precursory symptoms, and in those which accompany it.

The patient whose case is now under consideration is a married woman, 34 years of age. She contracted the disease four months since, from her child, who received the infection at school. The disease first makes its appearance in the form of minute vesicles, intermixed with small papulæ, which also in a short time, if allowed to remain undisturbed, assume the character of vesicles. The disease usually first forces itself upon the attention of the patient by the violent symptom from which it takes its name; and this sensation being followed by friction, gives rise to inflammation of the adjacent tissue, rupture of the vesicles, and the dissemination of the disease over the surrounding parts. In the present case the disease is of such long standing, and has been subjected to such vigorous friction, as to render some of the more marked characters of the complaint equivocal. I have not, therefore, attempted to demonstrate the existence of the itch insect in the present case: as, however, the subject is one of considerable interest, I may as well take the opportunity of shewing you an insect which I extracted from the arm of a girl, a patient of the Infirmary, last November, and which has been preserved by the scientific friend who aided me in my experiments. This gentleman has carefully inclosed the insect in a ring of ivory, between two light transparent layers of talc. In this prominent situation you may discover the *acarus scabiei* with the naked eye, as an almost imperceptible molecule on the surface of the talc; but when examined by the aid of the powerful glass which my friend has erected with so much care to exhibit this treasure of natural history, the little mite swells out into more imposing proportions. You see its eight many-jointed legs, and its feet furnished with soft vesicular cushions; you also see its forked feelers and head, so well adapted for burrowing beneath the integuments.

I am somewhat surprised to find that the insect, after so many months' imprisonment, should retain so much of its plumpness. It is true that the crimson colour with which the legs and head appeared to be injected, when the insect was first extracted, have disappeared, but in all other respects the *acarus* is unchanged. I must not encroach upon your time with further discussions on the subject at present, but at a future period of the course I shall enter more largely into the question, and endeavour to satisfy you, by the demonstration of insects in a series of cases, that they do *invariably* accompany this affection.

With respect to the treatment of this case, I have ordered the patient a tepid bath three times a week, to which is added four ounces of sulphuret of potash: I have also ordered her some alterative doses of Plummer's pill and sulphate of magnesia. In ordinary cases we find a few baths suffice to remove the complaint. The sulphur ointment, which is an offensive and inefficient application, we rarely use in this institution; but where local remedies are advisable, the following lotion will be found useful:—

℞ Potass. Sulphuret. ℥ij. ex Aq. Oj.
℞ Acid. Muriatic. ℥ij. ex Aq. Oj.

One-eighth part of each of the above solutions to be added to a pint of water, and form a lotion, to be applied freely to the parts affected.

A TABULAR VIEW OF THE ACTION OF REAGENTS ON URINE,

IN DIFFERENT DISEASES;

With Observations.

By R. H. Brett, M.R.C.S.L.

[Concluded from p. 640.]

The following experiments shew, that although the pink colouration in albuminous urine, upon boiling with muriatic acid, may be in part owing to the action of the acid on the albuminous matter, still, that some other principle must exist in the fluid capable of yielding an analogous colour with the mineral acids.

Three portions of albuminous urine were treated severally with nitric, sulphuric, and muriatic acid, and

boiled; a pink colour was struck. Now as the two first of these acids do not produce any pink colour when boiled with diluted albuminous fluids, the alteration of colour which was brought about by their agency could not be attributed to the albumen contained in the fluid. The colour produced by the muriatic acid might, indeed, be owing partly to the presence of albumen, and partly to that of some other organic principle: that it did not depend entirely upon albumen was proved by first coagulating this substance by heat, and then adding the acid to the fluid after filtration, when it was found that the pink colour was still struck. It may, therefore, be fairly assumed from these experiments, that there exists in certain, if not in all, specimens of albuminous urine, an organic principle, not albuminous in its nature, capable of yielding a pink colour with the mineral acids. Before describing the method I have adopted for obtaining this pink-coloured substance from urine, I shall notice some of the more striking chemical characters of a specimen of urine loaded with urea, and which, from its containing a very large proportion for that principle capable of becoming pink by the action of the mineral acids, afforded a better opportunity of studying its nature, than the more ordinary forms of urine in which it exists.

The urine in question was of a deep yellowish brown colour, so as closely to resemble bilious urine, specific gravity 1030; it reddened litmus paper, and yielded a very scanty deposit of the pink lithates.

1. When this urine was boiled, no coagulation, or even turbidity, ensued, but it became of a deeper colour.

2. When this urine was mixed with an equal bulk of nitric acid in the cold, the whole assumed a fine pink colour; after a short time the colour was less striking, the mixture becoming of a brownish pink; in a few minutes delicate films of nitrate of urea began to appear about the circumference of the fluid, which was contained in a shallow glass capsule; in about 20 minutes numerous crystalline plates were seen diffused over the whole of the fluid.

3. A portion of the urine was evaporated to half its former bulk; nitric acid produced an immediate deposit of nitrate of urea throughout the fluid: the same change of colour was observed as in the last experiment.

4. A portion of urine was evaporated to 2·3rds its original bulk; nitric acid was then added; in about three minutes crystals began to appear about the circumference of the fluid; in less than ten minutes crystals were diffused throughout the fluid: the same alterations of colour were observed as in the two preceding experiments.

5. The sulphuric and muriatic acids also produced a pink colour when added to this urine: the fluids were mixed in a glass capsule, and placed upon white paper.

6. When the urine was evaporated to a small bulk before the acids were added, the colouration was more marked, especially with sulphuric acid, which produced a rich carmine. The colour produced by any of the mineral acids after some time passed into a brownish pink.

7. Sulphuric acid and this urine were mixed in equal quantities and allowed to remain for five days: at the expiration of this period a precipitate had taken place, of a deep reddish purple; the whole was diluted with water, which caused a further precipitation of the same character, and then filtered: the insoluble residue on the filter was of a deep claret colour; it was well washed with distilled water until the wash fluids were no longer acid. The filter and its contents were then boiled in alcohol, specific gravity 812. The alcoholic fluid, after filtration, was of a rich claret colour, with a purplish tinge: by evaporation a dry residue was obtained of the same colour: this substance imparted no colour to cold, and scarcely any to hot water; its alcoholic solution reddened litmus.

8. The alcoholic solution obtained in the above manner was mixed with the carbonate of lime, and the whole evaporated to dryness: the dry mass was then boiled in repeated portions of alcohol of specific gravity 812, until the latter no longer became coloured: by this means a solution was obtained, not of a claret but of a rich lilac colour, possessing no acid reaction on litmus paper.

The following is the action of reagents on the alcoholic solution:—

1. Neither ammonia, the caustic, or

carbonated fixed alkalies, produce any alteration of colour.

2. Nitric acid in the cold does not destroy the colour; by boiling, however, especially when the acid is in excess, the lilac colour passes first into yellowish red, and lastly into a pale yellow.

3. Muriatic acid in the cold does not alter the colour: upon boiling the fluid the colour is in great measure discharged.

4. Diluted sulphuric acid produces no change of colour in the cold; strong sulphuric acid diminishes the colour, and hot sulphuric acid in great measure removes it.

5. Proto-muriate of tin does not discharge the colour in the cold; by boiling, the colour is entirely discharged.

6. This coloured substance is not soluble in caustic potass.

The following appears the best mode of obtaining this peculiar coloured substance:—

Evaporate the urine to a syrupy mass, and to the latter add about half its bulk of strong sulphuric acid: suffer the mixture to remain at rest for some time, and then dilute with water; throw the whole upon a filter, wash the insoluble residue with distilled water until the wash waters are no longer acid; treat the residue with repeated portions of hot alcohol until the latter is no longer coloured; mix the alcoholic fluid with an excess of finely-divided carbonate of lime, evaporate to dryness, exhaust the dry mass by means of boiling alcohol and filter: the filtered fluid contains the colouring matter tolerably pure.

In the first part of the operation, it is necessary that the residue on the filter should be well washed with distilled water, in order that all the salts and organic matter soluble in that fluid may be removed: what remains unacted upon is principally lithic acid, with insoluble earthy sulphate and the colouring substance: alcohol dissolves only the latter, and the subsequent boiling with carbonate of lime neutralizes the free acid with which the colouring matter is impregnated: the alcoholic fluid, before saturation with chalk, is of a fine claret colour; the last alcoholic solution is of a rich lilac. When the sulphuric acid is added to the urinous extract, care should be taken to prevent as much as possible the too great generation of heat which is likely to ensue from the rapid combination of the acid and the aqueous part of the extract: this is best effected by plunging the vessel containing the mixture into some artificial cooling compound: without such precautionary means, the sulphuric acid is apt to decompose the colouring matter, or prevent its formation; and it was probably owing to this action of sulphuric acid, that the colour was removed when the alcoholic solution of the colouring matter was boiled with sulphuric acid. By operating in this way, I have succeeded in obtaining from several specimens of apparently healthy, as well as some specimens of urine depositing lithates, this pink colouring matter. It is true that in these cases the quantity obtained was very small compared with the bulk of urine employed, but still I think it not improbable that the organic matter, whatever it may be, which undergoes this peculiar change by the action of the mineral acids, exists in most, if not in all, specimens of urine, although in very different proportions: further experiments are, however, required on this point, as well for the purpose of isolating, if possible, the organic principle before it has been acted upon by the mineral acids. I shall seize the first opportunity that offers for following out this inquiry; at present, I apprehend, the following propositions may be fairly entertained.

1st, That there exists occasionally, if not constantly, in healthy urine, a principle of an organic nature, capable of producing a pink substance with the mineral acids.

2dly, That the same principle exists in greater quantity in certain specimens of diseased than in healthy urine; viz. in urine containing an excess of urea, in diabetic and albuminous urine.

3dly, That the organic matter thus acted upon by the acids is not albumen, lithic acid, or urea.

In speaking of albuminous urine it is necessary to take into consideration not only those specimens which are almost uniformly found alike in their physical as well as chemical characters, but those also, which, differing as they do from each other very materially both in their physical conditions as well as in many of their chemical habitudes, have, nevertheless, one property in common—viz. that derivable from an albuminous impregnation. Those specimens which agree pretty nearly, both in their

physical and chemical characters, are derived, I believe, mostly from individuals suffering from dropsy with diseased kidney. Urine of this description is almost always pale in colour, acid in its reaction, and of low specific gravity; not generally yielding any deposit on standing. It is found deficient in urea, uric acid, the extractives met with in ordinary urine, and in both the alkaline and earthy salts. In specimen 50, in the tables, only 5·99 grains of urea were obtained from 1000 grains, and 3·02 grains of dry albumen from the same quantity. In another specimen of albuminous urine, not placed in the tabular view, the quantity of urea in 1000 grains was about 4·18 grains, and the dry albumen 2·18. In two other specimens also, not included in the tabular view, the quantity of urea and dry albumen were estimated from a given bulk, and not from a given weight of the urine. In the one there was found about 26·94 grs. of urea in the pint, and 38·4 of dry albumen; in the other as much as 84·2 of urea, and 28·8 of albumen in the same quantity. The quantity of urea estimated in one pint of healthy urine was 249·25 grains. Berzelius considers, that 1000 grains of healthy urine contain 30 grains of urea. The urea, then, was greatly, although not equally, deficient in all the four specimens of albuminous urine obtained from patients with dropsy and renal disease.

Certain specimens of urine, however, may be albuminous without there being such a marked deficiency of urea: thus out of nineteen specimens of albuminous urine, fifteen of which are contained in the tables, six were found not apparently deficient in urea; some, indeed, containing an excess of lithic acid, for they deposited the lithates upon standing: the colour of the urine in these cases was either natural or possessing a deeper colour than ordinary urine, certainly not paler. Urine letting fall the phosphates is occasionally albuminous: this variety differs from the more ordinary forms of albuminous urine in containing an excess of the earthy phosphatic salts; perhaps also an excess, certainly not a deficiency, of the alkaline phosphates; the urea in such urine is almost always larger in quantity than that met with in the common forms of albuminous urine, and it exerts a feeble action, or even none, on litmus paper, becoming generally alkaline after no great length of time.

Diabetic urine, more especially towards the latter stages of the disease, occasionally becomes albuminous: in such cases, it is found that those reagents which for the most part are without action on ordinary diabetic urine, cause either a turbidity or precipitate to take place.

Some specimens of urine, depositing more than the healthy proportion of mucus, contain traces of albuminous matter; such urine differs very little in other respects, physically considered at least, from that commonly obtained from individuals with renal dropsy. Urine depositing pus is invariably albuminous; generally, although not necessarily, pale in colour, and prone to become ammoniacal. Urine from which red particles of blood deposit upon standing, is also found to exhibit albuminous properties, more or less marked, according to the quantity of blood contained in it: urine of this description is sometimes found wanting in urea, at other times there is no marked deficiency of this principle: in the case of a patient who died of fungoid disease of the kidney, and who had passed during life much bloody urine, there was a deficiency of urea.

In specimen 31, although much blood was passed, the quantity of urea did not appear to be less than that existing in healthy urine. The individual from whom the specimen was obtained died of extensive encysted disease of both kidneys: the urine was given to me by my friend, Mr. Iliff, of Newington. What relation the quantity of urea found in the urine of patients labouring under dropsy, with diseased kidney, and who occasionally have the secretion mixed with red particles, bears to that obtained from the urine of those suffering from the same disease, but without containing any red particles, as also the relation which the quantity of urea in both these instances bears to that obtained from an equal quantity of healthy urine, I have not yet had an opportunity of ascertaining. It would, I conceive, be interesting, and perhaps important in facilitating diagnosis, to determine by a sufficient number of experiments the relative proportion of urea in bloody urine, obtained from individuals labouring under different diseases of the kidney.

There are a number of reagents ca-

pable of producing a turbidity or precipitate in albuminous urine: they are—heat, nitric acid, corrosive sublimate, acetic acid (under certain conditions), acetic acid and ferrocyanate of potass, alum, tincture of galls, subacetate of lead, chloride of zinc, nitro-muriatic acid, and liquid chlorine. As several of these reagents are capable of producing a precipitate in urine decidedly not albuminous, they can only be employed as corroborative tests when the existence of an albuminous substance has been rendered in the highest degree probable, if not absolutely certain, by the previous employment of such reagents as are not open to the same objections.

When urine contains a very small quantity of albumen, heat causes a uniform opalescence to pervade the fluid; no distinct flocculi, however, are seen to separate. If the quantity of albuminous matter be greater, then the application of heat first causes a marked opalescence, and, after boiling the fluid for a short time, a distinct precipitate, rather of a granular than flocculent character, is observed to take place: the precipitate is quite white. It sometimes happens that, upon applying heat to urine, flocculi of a pale brown colour, not unlike bran or saw-dust, separate from the fluid, especially when it cools: this, I believe, is owing to the presence of a small quantity of the red colouring matter of the blood which is dissolved in the urine. These coloured flocculi will occasionally be found to separate from urine upon boiling, although the fluid before the application of heat did not appear to possess the slightest red tinge.

I have reason to believe, from experiments made on this subject, that urine containing red particles of blood in solution, even in the smallest quantities, constantly affords a flocculent precipitate by boiling; whereas albumen causes the urine to assume a uniform opalescence when heat is applied, unless the albuminous matter be in considerable quantity; and even then, the precipitate produced by boiling is rather granular than flocculent in its appearance. In all cases where albuminous urine is altered by heat, nitric acid causes a turbidity or precipitate: in those cases, however, in which the quantity of albuminous matter present is very small, the addition of a minute quantity only of nitric acid produces no change; a larger proportion of the reagent invariably causes a turbidity. The nitro-muriatic acid has been recommended to me by my friend, Mr. Bird, as a more delicate test for albumen even than the nitric acid; and in the few instances in which I have tried it, it certainly has appeared to be so. Corrosive sublimate has long been considered a very delicate test for albumen; but it will be found, by referring to the tables, that the greater number of the specimens of urine there included were precipitated, or rendered turbid, by this reagent; healthy urine is also frequently, although not constantly, affected by it.

Berzelius says that corrosive sublimate does not produce any change in urine which contains free acid, unless it also contain albumen or caseous matter. It will, however, be seen by looking at the tables, that many specimens of urine possessing a decided acid reaction on litmus paper were rendered turbid by corrosive sublimate; but as such specimens were not altered by heat or nitric acid, the absence of albumen might be fairly assumed; and as the precipitate or turbidity produced by corrosive sublimate in these cases was entirely removed by nitric or muriatic acid, it is highly probable that no caseous matter either was present. The precipitate in these cases is, I imagine, owing to the formation of an insoluble phosphate of mercury, the alkaline phosphates existing in the urine reacting on the corrosive sublimate. Certain it is, that the alkaline phosphates are capable of precipitating corrosive sublimate, as may be shewn by dropping a little phosphate of ammonia into a solution of the latter salt. This precipitate is soluble in an excess of free phosphoric acid; and it is probably the presence of a larger proportion of this acid in a free state, in some specimens of healthy urine than in others, which prevents the precipitation of the insoluble phosphate of mercury. Besides all this, there exists in urine certain extractive matters, which Berzelius has himself shewn to be capable of precipitation by corrosive sublimate.

Alum, chloride of zinc, and tincture of galls, very frequently produce a precipitate in urine, both healthy as well as diseased, no albumen being present. In

the cases of alum and chloride of zinc, the precipitate produced depends upon the action of the alkaline phosphates contained in the urine on the above salts, the precipitates being removed by the nitric or muriatic acids. Both alum and chloride of zinc are precipitants of albumen; it must be observed, however, that the precipitate which alum produces in weak albuminous solutions may be redissolved by an excess of the precipitant. It does sometimes happen that urine, more especially of the phosphatic kind, which has been kept for some hours, shall contain albumen in the form of an albuminate of ammonia, and consequently in a state not capable of being thrown down by heat. If to urine of this description heat be applied, it becomes turbid, not from a coagulation of albumen, but from a precipitation of the earthy phosphate; for the addition of a small quantity of diluted nitric acid, care being taken not to employ an excess of the latter, renders the fluid clear. If strong nitric acid, somewhat in excess, be employed, the fluid will be found to remain permanently turbid, in consequence of the coagulation of the albumen by the acid, the latter being in sufficient quantity not only to redissolve the precipitated phosphatic salt, but also to decompose the alkaline albuminate, supersaturating the ammonia, and throwing down the albumen. If we filter such urine after boiling, so as to remove the phosphatic salt which had been thrown down by heat, and then add nitric acid in slight excess to the filtered fluid, a turbidity will be produced; for here also the acid supersaturates the free alkali which the urine may contain, as well as that which is in combination with albumen, and the result is the precipitation of the latter principle. Specimen 52 of the tables affords an instance of alkaline phosphatic urine containing albuminate of ammonia.

It might, perhaps, be objected to the above statement, that it is assumed that the alkaline phosphatic urine in question contained albumen, solely from the fact of its yielding a precipitate when treated with an excess of nitric acid, without proving by actual experiment that the volatile alkali possesses the property of forming a compound with albumen, incapable of precipitation by mere heat. The following experiment justifies the explanation already given:—To some healthy urine sufficient ammonia was added to render the fluid distinctly alkaline; the whole was then filtered to get rid of the precipitated phosphates, a little serum of blood was then added, and heat applied: no coagulation or turbidity ensued. Supersaturation with nitric acid caused a coagulation of the albumen; nor is it absolutely necessary that urine should possess free alkali, in order to prevent the coagulation by heat of any albumen it may contain. Urine, which is neutral, may still contain albumen associated with ammonia, in the form of an albuminate, and still suffer no change by mere heat.

It appears, then, from what has already been stated, that there is no one reagent which can be looked upon as *per se* unequivocally proving the existence of albumen in the urine, with the exception, perhaps, of the nitric or nitro-muriatic acids. It may, however, be fairly assumed, that whenever urine becomes turbid by heat, the turbidity not being removed by nitric acid, and when, at the same time, nitric or nitro-muriatic acid causes a turbidity, such urine contains albumen.

It becomes a matter of interesting inquiry, whence does the albumen so frequently met with in certain specimens of urine derive its origin:—is it always from the blood?—is it ever of chylous origin? Dr. Prout was of opinion, that urine was not very unfrequently rendered albuminous by chyle, or something nearly approaching chyle in properties, and that such urine might be distinguished from that which contains sanguineous albumen, from the fact, that in the latter case red particles of blood are constantly present also. According to this statement, we should be induced to consider the albumen found, in the greater number of cases of renal anasarca, as of chylous origin; for in such cases I believe that the urinary secretion is far more frequently found pale in colour, and devoid of red particles of blood, than associated with them. Also, in those cases where an albuminous condition of the secretion is found coexisting with a deposit of the lithates or phosphates, no red particles being present.

We are, however, I apprehend, by no means justified in admitting the accuracy

of this distinction, when we take into consideration the perfect analogy, as far, at least, as refers to the nature of the ingredients, existing between the serous portion of chyle and that obtained from blood. Thus the analyses of Tiedemann and Gmelin go to show that the serum of chyle is made up of albumen, extractives, fatty matters, and salts, analogous to those met with in sanguineous serum. How, then, are we to ascertain, by chemical investigation, whether urine is albuminous, in the one case, from chylous, and in the other, from sanguineous serum? Surely the absence of red particles of blood, in the one case, cannot warrant the conclusion, that the albumen present is of chylous origin; for we have every reason to believe that the watery or serous parts of the blood are capable of passing from the capillary vessels, under certain states of the system, and of forming albuminous accumulations, either in the cellular tissue or in serous cavities, without any accompanying red particles; and there appears nothing at variance with strict analogy in the supposition that the capillary vessels of the kidneys, under certain conditions of those organs, shall also allow of the transudation of the serous parts of the blood, equally free from the red colouring matter. It is at least, I conceive, a more ready way of explaining the cause of the albuminous condition of the urine in such cases as have just been treated of, and which, although not embracing every possible form of albuminous urine, nevertheless comprehend all the ordinary ones, than to suppose either that the kidneys, from deranged function, secrete chyle, or that the latter fluid, after being formed in the ordinary way, is removed from the system by the urinary outlets.

The specimens which Dr. Prout adduces as examples of chylous urine are doubtless rare, and differ widely from the common forms of albuminous urine, already spoken of; and if I might venture to offer an opinion respecting their nature, I should be disposed to regard them more as caseous than chylous specimens; at least those which did not undergo coagulation by heat, probably mixed with blood, or even chyle, in those specimens which suffered coagulation by heat. In these specimens, however, four in number, red particles were found, which circumstance ought, agreeably to a former statement made by Dr. Prout, viz. that chylous albumen was to be distinguished from sanguineous albumen by the absence of red particles, to negative the opinion that the specimens in question were of chylous origin. But it may be asked, if the absence of red colouring matter in albuminous urine is to be looked upon as negative evidence that the albumen is of chylous origin, is chyle itself devoid of that peculiar colouring matter which is known to exist in blood? To this it may be replied, that according to the elaborate researches of Tiedemann and Gmelin on digestion, the absence or presence of red colouring matter in chyle depends upon whether it has yet passed through any glandular structure or not. Their experiments prove that chyle, previously to its transmission through the mesenteric glands, is devoid of colouring matter, and that it is only after it has been subjected to the action of these structures, that the colouring principle becomes developed *. It is evident, therefore, that the mere presence of red colouring matter in urine is no more to be admitted as positive evidence in support of the opinion that such urine is albuminous from blood, than the absence of the same colouring matter is to be regarded as demonstrative of the albuminous impregnation being of chylous origin; for if chyle is capable of getting into the urine, it is to be presumed that it may be found in that fluid either with or without colouring matter—unless, indeed, it could be proved that that form of chyle which is without red colouring matter, only is capable of passing into the urinary secretion.

In two out of the four specimens spoken of by Dr. Prout, it is stated that the albumen, although considerable in quantity, was not coagulable by heat; and this is the state in which Dr. P. believes it to exist in chyle, and which he has called incipient albumen. This opinion, however, is quite at variance with the more recent experiments of Tiedemann and Gmelin, as also of Reuss and Emmert. The two former of these physiologists found that the serous portion of chyle obtained from the thoracic duct, as well as that from the lymphatic

* Tiedemann et Gmelin sur la Digestion, traduit par Jourdan, partie 2nde, p. 87.

vessels before transmission through any glandular structure, was coagulable by heat, and contained other principles analogous to those met with in the serum of blood. In five experiments also made by them on the chyle of animals who had fasted for some hours, the serous portion was coagulable, not only by heat, but also by acids; in short, behaved towards reagents in the same way as serum of blood.

These experiments of Tiedemann and Gmelin, then, whilst they clearly show the close analogy that exists between sanguineous and chylous serum, also cannot fail to point out a striking difference between chyle and that peculiar milk-like principle which I have already shewn to exist in diabetic urine, and which I am ready to admit may be very imperfectly formed chyle—that is to say, a fluid containing the principles met with in milk, formed during an impaired digestive process, instead of healthy chyle, which is a strictly albuminous fluid. It would appear from what has already been said of albuminous urine, that the existence of this principle in the secretion cannot be always regarded as indicative of a serious disorder of the system in general, or of the kidneys in particular, for such a state of the secretion may be met with in cases where the only departure from health seems to be a derangement of the digestive functions, constituting dyspepsia, as well as in cases where pathological investigations afterwards demonstrate the most decided disorganization of the kidneys. It is true, that in the cases where an albuminous condition of the urine coexists with symptoms merely of a mild dyspeptic character, that the quantity of that principle is almost invariably small, and rarely lasting for any length of time; the other conditions of the urine, physical as well as chemical, are also very different from those observed in cases where, with an albuminous state of the urine, there exists also unequivocal indications of serious disease: among the latter may be enumerated the renal anarsarca of Dr. Bright, fungoid and encysted disease of the kidney, suppurative mischief in that organ, or in other parts of the urinary apparatus, impacted renal calculi, &c.

R. H. B.

July 1836.

ON THE ANATOMY AND PHYSIOLOGY OF THE OTIC GANGLION.

To the Editor of the Medical Gazette.

Sir,

The accompanying paper, on a subject which has hitherto been much neglected, may possibly prove interesting to your numerous physiological readers; and, by directing their attention to it, assist in advancing the science which the circulation of your journal has so materially tended to promote.—I am, sir,

Your obedient servant,

J. H. Bennett.

Edinburgh, 17, Union Place,
July 16, 1836.

The attention of anatomists in this country was directed to the otic ganglion by a paper which appeared in the Edinburgh Medical and Surgical Journal for July, 1833, entitled "Anatomical and Physiological Description of the Otic Ganglion;" translated from Arnold's work, in German, on "The Cephalic Part of the Vegetative System in Man."

Those who are anxious to obtain a minute description of its anatomy, I must refer to the original memoir, or the article in the above-mentioned periodical. It will be here sufficient to say that Professor Arnold first wishes to establish the presence of a ganglion on the third branch of the trigeminus, bearing, in size, structure, situation, and connexion with a motor and sensitive nerve, a strong analogy to the ophthalmic ganglion connected with the first branch; and, secondly, he attempts to prove, from the existence of this analogy, and from researches in comparative anatomy, that it possesses the peculiar function of governing the involuntary motions of the membrana tympani.

Some anatomists* have denied the existence of a ganglion in the situation described, considering the swelling which occurs to consist of a lymphatic gland, or as being formed by cellular tissue, enveloping the small branches which come off from the nerve. In most of those, however, which I have examined, the grey matter characteristic of a ganglion has been present,

* See Schlemm, Edinburgh Medical and Surgical Journal, vol. xxxix.

mixed up with a minute plexus of nervous fibres, and its appearance has been so distinct from cellular membrane, that of a lymphatic gland, or swelling of the nerve, as to leave little doubt, in the opinions of all who have witnessed the dissections (among whom were Drs. Knox and J. Reid), regarding the nature of its structure. Professor Arnold, therefore, is fully entitled to the merit of having discovered a ganglion on the third branch of the trigeminus, analogous to the other sympathetic ganglia within the head.

But the result of my dissections, both human and comparative, have shown that its presence is only occasional. I have carefully dissected the third branch of the fifth in eight human subjects, and found it was not present in three of these. In one head it was dissected by Dr. J. Reid (whose accuracy in anatomical investigation is well known), and the ganglion discovered fully developed on one side, and absent on the other. In some animals it is extremely difficult to say whether it be present or not. In the horse and ass, the third branch of the fifth, immediately after leaving the foramen ovale, is enveloped in a dense reddish substance, certainly bearing no resemblance to a gangliform or glandular structure, yet at the same time unlike what is found in other animals, except perhaps the pig, which in this situation presents an appearance somewhat allied to it. I have dissected it in six horses, and found the appearance uniform, but am not yet prepared to state its exact nature.

From the dissections I have made and seen, it appears that the ganglion varies greatly in size. I have seen it as large as a common pea *, and as small as an ordinary-sized pin's head: it does not appear, either, to give off any uniform number of branches. When present, I have always been able to trace from it one or two branches running into the tensor tympani muscle, and others which are distributed in the tensor palati. When absent, the same branches come off directly from the nerve, and these, in one case, formed a small plexus in the situation of the ganglion. Its position also is liable to variation, on some occasions being situated on the nerve further from the foramen ovale than at others.

The greatest caution must be used in dissecting the branches which the ganglion gives off: they are about the size of a human hair; and considerable discrimination is necessary to distinguish them from shreds of cellular tissue. This is more easy in the fresh subject, from the ganglionic filaments being of a brownish-pink colour; but after maceration in spirit this disappears, and then they are only to be distinguished by a good lens, under which I have always been in the habit of dissecting them. It is usually thought more advantageous to dissect the nerves after the part has lain in spirits for some time; but in making out branches so extremely minute, I have found it preferable to dissect them when fresh. The spirit blanches the neighbouring parts, and causes them to be less easily distinguished, and, moreover, produces a diminution of their size. In several males, the branches, which were quite distinct when fresh, became invisible to the naked eye after lying a few days in spirit.

But it is the function ascribed to this ganglion that renders its study interesting, involving as it does some of the most important physiological doctrines. Its various connexions prove it to belong to the sympathetic system of nerves, in the same manner as the ophthalmi, spheno-palatini, &c.; and the question, therefore, meets us at the very commencement of the inquiry, whether these ganglia are, indeed, nervous centres, or little brains, and possess independent functions, as Johnstone and Bichat imagined. It appears to me that all the facts we at present possess on this subject are at variance with such an hypothesis, and that the obscurity which has hitherto hid from us the uses of these bodies, is as impenetrable as when those authors wrote. Observation shews us that they are very variable in size, sometimes altogether absent, while the function over which they are supposed to preside undergoes no variation. The experiments of Bichat, Magendie, Swan, and Philip, prove that they may be irritated in the living body without producing any effect; and many of them cut or torn out, without the slightest perceptible change in the animal functions.

Much of the reasoning adduced by

* This was seen in a head exhibited by Dr. M. Barry to the Royal Medical Society of this place, which he dissected under the immediate inspection of Arnold.

Arnold in support of the supposed function of the otic ganglion, is analogical, and rests upon the assumption that the lenticular has the power of governing the motions of the iris. We must, therefore, inquire how far observation and experiment confirm this view.

Brachet has shewn that destruction of the lenticular ganglion paralyses the iris, but this is insufficient to prove that it has any power independent of its connexion with the motor nerve of the eye-ball; in fact, the experiments of Mayo prove that it has not, showing as they do that section of the third pair alone is sufficient to produce this. If this ganglion, then, had any peculiar or independent power in itself of regulating these motions, could section of the third pair render the iris motionless? Mr. Swan also mentions, that the third nerve is sometimes diseased, so that it cannot perform its functions, and in this case there is a paralytic state of the muscles it supplies. This circumstance, he says, "shews that the ciliary ganglion is not an independent part, but that it receives its power of causing contraction from the third." Section of the fifth, the other nerve contributing to form the lenticular ganglion, destroys (as Sir C. Bell has demonstrated) the common sensation of the eye, but has no immediate effect on vision, or the motions of the iris.

These facts at all events throw considerable doubts on the truth of the assumption advanced by Arnold, and to a certain extent render valueless the strict similarity he has drawn between the motor and sensitive connexion of the lenticular and otic ganglions. But allowing, for the sake of argument, that the first-named ganglion possesses all the power over the iris ascribed to it, this is no reason why the last should influence the motions of the membrana tympani, since it can be shewn that there are other ganglia in the vicinity of this region which are equally connected with the nerves going to the organ of hearing as the one under discussion: for example, the submaxillary ganglion is described as being formed by the chorda tympani; the chorda tympani is a continuation of the vidian nerve; the vidian nerve is intimately connected with the portio dura. This supplies the muscles of the internal and also those of the external ear, and is the motor of these muscles. The branches of the portio dura passing to the muscles of the internal ear, anastomose with the nervus tympanicus of the glosso-pharyngeal, and if Arnold's opinion is correct, that the nervus tympanicus anastomoses with the portio mollis, we must claim for the vidian, through the medium of the portio dura, the same connexion with the portio mollis as is claimed for the branches from Arnold's ganglion. We have here traced—1st, a sinus connexion between the submaxillary ganglion, and the motor nerves of the external and internal ear; and, 2dly, an anastomosis between the portio dura and the nervus tympanicus, and this is all that is claimed for the otic ganglion. Indeed, a more direct communication could be traced between the submaxillary ganglion, and the branches going to the external ear, for Arnold does not attempt to trace any connexion between the otic ganglion and the branches of the portio dura; regulating the motions of the external ear, he only shows that it has connexions with the superficial temporal of the third branch of the fifth, which sends some branches to it. Now we have every reason to believe that the branches of the superficial temporal distributed to the ear, are entirely nerves of sensation, as, according to Meckel, they are found principally distributed to the integuments and ceruminous glands; and we have not the slightest evidence that they are at all connected with the motions of the ear. These motions are dependent upon the portio dura, and any connexion between the otic ganglion and the superficial temporal branch of the inferior maxillary nerve can have no influence on them. It appears to me that the associated movements of the external and internal ear may be explained in a much more simple manner; for as it cannot be denied that the same motor nerve (the portio dura) supplies both the internal and external muscles of the ear, it will, in all probability, cause them to move in unison.

We could trace the same connexion between the branches of Meckel's ganglion, or the spheno-palatine, which lies nearer the organ of hearing, and the nerves supplying the muscles of the ear (if mere vicinity is of any importance in a case of this kind). But we might have objected, *in limine*, to any arguments drawn from minute and indirect communication of nerves, such as

those traced with the otic ganglion, and some of the nerves whose functions it is supposed to modify; for by a similar process of reasoning, we could argue that any nerve at the base of the cranium could modify the functions of numerous other nerves, over which experiment and observation have led us to believe it exerts no influence; at all events no anatomist or physiologist can argue for the modifying influence of one nerve over another at the base of the cranium, from even much more direct nervous communication than what is insisted on for the otic ganglion, unless he had a series of well-performed and accurate experiments to build any thing like a scientific conclusion on.

I shall now examine how far researches in comparative anatomy favour the view of Arnold, as from these he derives the principal arguments in support of his theory. He states, that the otic ganglion is only to be found in those animals which have a tensor tympani; and that as this muscle, according to his researches, does not exist in birds and amphibious animals, but is to be found in the mammalia only, so these alone possess the ganglion in question. But, according to Mr. Owen, birds are not destitute of a tensor tympani. He says*, "the elongated stapes, or tympanic ossicle, is moved by one muscle, which comes from the occiput, and penetrating the cavity, is affixed to the triangle that is connected to the membrana tympani. This muscle, in consequence of the connexion of the ossiculum, *is a tensor*, and draws the membrana tympani outwards. It is counteracted by two small tendinous cords, that are extended to the internal parietes of the tympanum." It does not appear to me that the presence or absence of the tensor tympani has any thing to do with the existence of this ganglion. It is occasionally absent in man, although the muscle is well developed; in the horse, ass, and pig, I have already said its presence is doubtful; and in the dog and cat it is entirely absent.

He also endeavours to prove that the size of the otic ganglion bears, in the different races of animals, a direct relation to that of the external ear, in order that the sounds collected, which on some occasions would be too powerful, might be moderated before reaching the auditory nerve. This is done, according to him, by means "of the communication of this nerve with the facial nerve, and the connexion of the latter with the smaller superficial petrous nerve to the otic ganglion, which, according to the impressions received, exercises such an influence on the tensor tympani, that the membrane is put into a degree of tension according to the power of the sound, in order to prevent a too violent irritation of the auditory nerve."

All the dissections I have made, however, have not led me to the conclusion that the otic ganglion is larger, or more intimately connected with the organ of hearing, on account of the size and mobility of the external ear. He says, that in those animals which have very large and moveable ears it is even double. But I have dissected it now nine times in the rabbit, and found it double only once, and four times in the hare, in whom it was by no means so much developed as in the rabbit. In the pig, it is small, consisting of a reddish substance interwoven with the nervous filaments. In the horse and ass, its existence is doubtful. In the calf and sheep, it is well developed. I have dissected it fourteen times in the latter animal, and uniformly found it present; though varying much in size, and in the number of branches it gives off. In the dog and cat, where, according to Arnold, the ganglion is smaller than in the before-mentioned animals, I have not been able to find it. But in the mole, in which animal it is said to be smallest, and seen with difficulty, I readily found it in the usual situation, and of comparatively very large size, with distinct branches coming off, apparently distributed to the tensor tympani and neighbouring muscles. This dissection I repeated in six moles, with the same result.

These dissections, therefore, are opposed to the fact which Arnold wishes to establish, and, I think, warrant the conclusion that the otic ganglion is liable to much variation, not only in animals of the same genus, but in animals of the same species; while the function ascribed to it probably undergo little variation.

I cannot either reconcile the explana-

* Encyclopædia of Anatomy and Physiology, vol. i, p. 308.

tion which he offers of the associated movements of the external and internal ear, with the experiments of Savant (as is thought to have been done.) For if, according to Savant's opinion*, the tensor tympani muscle be thrown into action for the purpose of lessening the force of the vibrations of the membrana tympani when sounds are disagreeably loud, it is evident there can be no associated action between the tensor tympani and the muscles which move the external ear. When an animal wishes to catch feeble sounds he erects his ears; in other words, he throws the muscles of the external ear into action, and at that time, according to Savant's theory, the tensor tympani ought to be relaxed; but suppose the sounds should become disagreeably loud, the animal relaxes the muscles of the external ear, and the tensor tympani acts, for the purpose of diminishing the vibrations, so that these muscles, instead of acting in unison, must, in this case, be direct antagonists.

From the various facts and arguments stated, therefore, it does not appear to me that we are warranted in attributing to this ganglion any peculiar or distinct function independent of the brain and other ganglia of the sympathetic system, to which in structure, connexions, and occasional varieties, it is so similar; and that, until physiologists have succeeded in establishing the uses of this portion of the nervous system in a more satisfactory manner than has hitherto been done, we cannot, with propriety, argue in favour of the modifying influence of any one or more ganglions composing it.

ON THE EMPLOYMENT

OF

TARTAR EMETIC AND OPIUM IN DELIRIUM TREMENS,

AND IN THE

ANALOGOUS DELIRIUM OCCURRING IN FEVER AND FEBRILE DISEASES.

To the Editor of the Medical Gazette.

SIR,

As I find that the assertion of my claim to having been the first to have employed the combination of tartar emetic and opium in delirium tremens, and my denial of being indebted to any one's suggestion for its further application to a similar form of delirium occurring in other diseases, have excited some degree of surprise, I feel myself involved in the necessity of resting my pretension to originality on some more substantial basis than my own bare assertion. Professor Graves was the first to publish this mode of treating delirium tremens, in a clinical lecture, delivered at the Meath Hospital, and reported in the 15th number of the 7th volume of the London Medical and Surgical Journal, May 9th, 1835; and the allusion he makes to it is in the following terms: "I referred to many instances of delirium tremens, in which opium, in every form, had failed to procure sleep, and then a combination of tartar emetic and opium had succeeded in tranquillizing the patient and procuring sound sleep." Again: "I said to Dr. Stokes that I wished to try what effects might result from a combination of tartar emetic and opium; I mentioned that I had given it in cases of delirium tremens with remarkable success," &c. &c. These and similar observations, although they contained no claim to this practice having originated with Dr. Graves, produced this impression; and so general was the impression, that many regarded my title as questionable, and as demanding more than mere assertion to set aside his prior claim. If the question of the priority of the practice be between Dr. Graves and myself (and I know no other with whose pretensions I have been charged with interfering), I would adduce the following note, received from my intelligent friend, Dr. Dwyer, in reply to one of mine, inquiring of him what he knew of the treatment of delirium tremens by the combination of tartar emetic and opium, and of its introduction into the Meath Hospital:—

"My dear Doctor,—It was, I think, in 1831, that, while attending the Meath Hospital, Dr. Graves, on my suggestion, treated some cases of delirium tremens with a combination of tartar emetic and opium. This suggestion I was induced to offer from having seen it so successful in relieving similar cases under your care in Sir Patrick Dun's Hospital some time before.—Ever yours, &c.

"HENRY L. DWYER.

"*Robert Law, Esq. M.D.*

"54, *Granby-Row, March* 31, 1836."

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* Annales de Chimie et de Physique, Mai, 1824.

While I thus appropriate to myself whatever merit may belong to the originality of this practice in delirium tremens, I must proceed to prove that I am not indebted to any one's suggestion for its ulterior application to similar delirium occurring in fever and febrile diseases, by adducing cases, bearing dates anterior to Dr. Graves's observations on the same treatment applied to the delirium of fever, and, as he states, suggested by the analogy of its success in delirium tremens. The observations of Dr. Graves appeared in the 15th number of the 7th volume of the London Medical and Surgical Journal, *May* 9, 1835, and in the 16th number, *May* 16, 1835; neither of which did I see for some time after their appearance.

Case I.—*Petechial Fever, with violent Delirium.*

Anne Manyfold, aged 22, six days ill before admission, received into hospital *April* 28, 1835.

She complains of general soreness and aching pains. Pulse 108, rather firm; skin hot and dry; tongue covered with yellowish fur in centre, red at point and edges; respiration laboured and oppressed; belly tympanitic, but not sore on pressure. She has some slight headache, which was her principal complaint at first, and for which she had leeches applied to her temples with relief.

Lotio frigida fronti. ℞ Mistur. Camphor. ℥iv.; Aquæ Acetatis Ammoniæ, ℥ij.; Spirit. Ammon. Aromat. ʒj. M. sumat ℥j. 4tis horis. Pulv. Jacobi, gr. ij. 4tis horis.

29th.—She complains of a sharp lancinating pain in the right side, increased by a full inspiration and by pressure.

Venesectio ad ℥xij.; si perstet dolor, Hirudines duodecim parti dolenti.

30th.—Only a small quantity of blood could be procured from the arm; it exhibited a slight greenish pellicle. The leeches completely removed the pain of the side. The skin, especially of the chest, marked with a dark measly efflorescence.

Repetatur Pulvis Jacobi.

May 1st.—Pulse 120, firm and resisting; increased duskiness of the surface; belly tympanitic. She complains more of vertigo than of headache.

Lotio frigida fronti.

2d.—Pulse 132. Delirium through the night and morning.

Repetatur Pulvis Jacobi. Lotio frigida fronti. Fomentationes terebinthinatæ cruribus.

3d.—She has been in a state of violent delirium during the night. Pulse 138, strong and full; petechiæ of a deep purple colour; abdomen tympanitic; eye not suffused. She seems quite absorbed, and insensible to every thing passing around her.

℞ Misturæ Camphoræ, ℥vj.; Liquoris Opii Sedativi, gtts. xl.; Tartari Emetici, gr. iss. M. sumat ℥j. 2dis horis.

Repetatur lotio frigida fronti, et fomentationes cruribus.

In the course of the day she became so noisy and violent that the strait waistcoat was had recourse to. At 8 o'clock in the evening we found her in a perfect phrenzy, expressing herself in the most exasperated language against some persons whom she fancied about her.

Habeat statim haustum, e. Tinct. Opii, gtts. xl.; Misturæ Camphoræ, ℥j.; et si perstet delirium, ℞ Misturæ Camphoræ, ℥vj.; Tartari Emetici, gr. vj.; Træ. Opii, ʒj. M. sumat ℥j. 2dis horis.

4th, 10 o'clock, A.M.—The draught made no impression upon her; she took the greater part of the mixture, and at 6 o'clock this morning she fell into a tranquil sleep, in which she still continues.

5th.—She has had no return of the delirium, but slept quietly through the night. Pulse 114, sharp and wiry. She seems very much jaded and exhausted; she complains of thirst, and has some pain on pressing the epigastrium.

Hirudines sex epigastrio.

Her recovery was rather tedious, from the sickness and exhaustion, but was complete.

Case II.—*Petechial Fever, with Delirium Tremens.*

John Dany, aged 40, of a strong robust habit, addicted to the immoderate

use of ardent spirits, was admitted into the hospital *February* 13, 1835.

He can give no account of how long he has been ill, or in what way his illness began. Present phenomena: pulse 126, full and strong; tongue white in the centre, red at the point and edges; face flushed; eyes suffused; measly efflorescence of skin, especially across the chest; belly tympanitic. Although he speaks quite coherently, and answers questions correctly, still there is a peculiar hurry and agitation in his manner. He is very gloomy and despondent about himself.

Lotio frigida fronti. Foveantur crura.
℞ Mist. Camphoræ, ℥vj.; Tart. Emet. gr. iss.; Liquor. Opii Sedativi, gtts. xxx. M. sumat ℥j. 3tiis horis.

14th.—Pulse 132, weaker, but still full and bounding; face flushed; eyes suffused; pupils rather contracted. Had some quiet sleep, with occasional delirium. He is still disposed to fall into a heavy stertorous sleep.

Hirudines sex pone singulas aures. Vesicat. nuchæ. Repetatur mistura, emisso Liq. Opii Sedativo.

15th.—Pulse 108, soft; no delirium during the night; medicine produced no nausea, nor sickness of stomach; pupils still contracted.

Repetatur Mist. aucto Tartaro Emet. ad gr. duo.

16th.—Face flushed; eyes suffused; pulse 102. Delirium constant through the night; abdomen tympanitic.

℞ Mist. Camphoræ, ℥vj.; Tart. Emet. gr. iij.; Tinct. Opii, ʒj. M. sumat ℥j. 3tiis horis.
Vesicat. nuchæ.

17th.—Has had quiet sleep, without delirium, during the night. Face not flushed; eyes not suffused; medicine does not sicken him; has had a distressing hiccough for two days.

Vesicat. epigastrio.

19th.—Has been free from delirium since last report; hiccough removed. Convalescent.

Case III.—*Petechial Fever, with violent Delirium—Erysipelas of Head and Face, with Delirium.*

Eliza Hughes, aged 25, married, admitted into hospital *May* 1, 1835

The subject of this case was sister to Ann Manyfold, subject of Case I.

The details of the case would occupy too much space; we must therefore content ourselves with a cursory outline of it. The phenomena presented on admission were—pulse 120, small; pungent heat of skin; measly efflorescence of chest; face flushed; eyes suffused. Tongue white in centre, red at point and edges; epigastrium tender on pressure. She complains of supraorbital head-ache: sleep very disturbed.

Hirudines quatuor singulis temporibus. Lotio frigida fronti. Hirudines sex epigastrio, et postea cataplasma amplum abdomini. Foveantur crura.

She continued to amend till the 8th; then she began in the evening to roar in the most violent manner, and kept it up without intermission till 4 o'clock the next morning, when she became somewhat less boisterous.

℞ Mist. Camphoræ ℥vj.; Tartari Emetic. gr. i.; Tinct. Opii, gtts. xxx. M. sumat. ℥i. 3tis horis. Lotio frigida fronti. Foveantur crura.

8th.—Was in a state of violent delirium all night. Head not hot; eyes not suffused; diarrhœa. She seems to suffer pain when the abdomen is pressed.

℞ Pulv. Ipecacuanhæ Comp. gr. quinque 3tis horis. Vesicat abdomini. Lotio frigida fronti. Foveantur crura.

9th, 10th, 11th, 12th.—Each day delirium has become less, and she visibly improves. Petechiæ have disappeared. The poor creature verified her own expression of being sore from the crown of the head to the sole of the foot, for there is no part on which she has lain, no matter how short a time, that is not affected with inflammation—viz. the back of the head, the right ear, each hip, and the left heel.

Lotio ex partibus æqualibus spiritûs vini Camphor. et Aquæ Acetatis Ammoniæ partibus inflammatione affectis.
℞ Carbonatis Ammoniæ, ʒi. Sulphatis Quininæ, gr. vi. Confect. Aromatic. q. s. Fiant boli qutuor. Sumat unum, 4tis horis. Arrowroot and wine.

Notwithstanding every vigilance that was exercised to prevent the inflamed parts sloughing, sloughs formed, and duly separated.

June 9th.—She was seized with sickness of stomach and vomiting; and on

directing our attention to a soreness of the right side of her head, we observed it to be affected with erysipelas; that it was of a deep crimson redness, and was soft and pulpy to the touch. The sore of the ear was evidently the *point du depart* of the erysipelas; the head and face swelled very considerably. The eyes were completely closed. While in this state she became so violently delirious as to require to be placed under restraint. She had raved all the preceding night, and at our visit the next day, at 10 o'clock, we found her in a state of high excitement. We directed for her the following mixture:—

℞ Mist. Cardiac. ℥vi.; Tartari Emetic. gr. iss.; Tinct. Opii. gtts. xxx. M. sumat ℥i. 3tiis horis. Fomentationes terebinthinatæ cruribus.

The next night was passed without any delirium. Nothing afterwards occurred to retard her recovery, which, however, was slow, from the number of sores, all of which healed. We never had to deal with a case which, in its course, presented such varying phases, and, in consequence, demanded such varying modifications of treatment.

Case IV.

Scarlatina, with violent Delirium.

John Byrne, aged 20, labourer, of very intemperate habits, admitted into hospital *April* 7th, 1835.

He was reported to have been ill six days before admission. Immediately on coming into hospital, he became so violent as to require the strait-waistcoat. Phenomena then present:—full, bounding pulse; face flushed; eyes suffused; tongue moist and red; pungent heat of skin; belly tympanitic; thirst.

Abrada Capillitium. Lotio frigida fronti. Hirudines duodecim singulis temporibus. Foveantur crura.

℞ Tart. Emetic. gr. vi.; Aquæ, ℥vi.; Tinct. Opii, gtts. xx. M. sumat, ℥j. 3tiis horis.

8th.—Delirium continued violent and constant through the night. Upper part of the trunk of a crimson red hue; eyes suffused; pulse full and strong; respiration laboured. Medicine produced no sickness nor nausea.

℞ Tart. Emetic. gr. viij.; Aquæ, ℥vi.; Tinct. Opii, ʒi.; M. sumat. ℥i. 3tiis horis.

9th.—Skin universally covered with dark purplish efflorescence; pulse more frequent, and less full; face flushed; delirium less violent through the night. He is at present in a heavy lethargic state. An irregular action of the hands.

Vesicat. Nuchæ. Fomentationes terebinthinatæ cruribus. ℞ Mist. Camphor. ℥vi.; Tart. Emetic. gr. iv.; Spirit Etheris Nitrosi, ʒiij. M. sumat. ℥i. 3tiis horis.

10th.—Pulse 102, steady. Skin very much mottled. Had quiet tranquil sleep in early part of night. Is at present neither excited nor heavy and drowsy. Teeth and gums fuliginous. He has never complained of sore throat; however, on looking into his mouth, we discovered the tonsils, uvula, soft palate, and back of the pharynx, covered with an ash-coloured slough and a large quantity of thick, viscid, ropy mucus. He derived the greatest comfort from having the throat cleared of this mucus, by means of a probang, steeped in a solution of nitrate of silver (nitrat. argentis, gr. x.; aquæ distillatæ, ℥i. M.). This was applied to the inflamed parts, and then moved about in different directions, so as to entangle the mucus, and then withdrawn. We have often resorted to the same expedient in similar cases, and thus obtained a relief for our patient, which we in vain had sought from gargles. The efflorescence of the skin is now more distinctly that of scarlatina: its appearance hitherto left us in some degree of doubt whether it was petechial.

The entire body covered with crimson efflorescence, in patches. Pulse 108, rather weak. Skin not very hot. There is a considerable fulness, with redness and pain, in the region of the left parotid gland. He had no delirium during the night.

Hirudines octo regioni parotideæ sinistræ et postea cataplasma.

13th.—Crimson efflorescence has disappeared, leaving in its stead a mottled dusky appearance of the skin. Had muttering delirium through the night, which he also has at present, with irregular motion of the hands. Face not much flushed, nor eyes much suffused. Teeth and lips fuliginous. Parotid swelling hard and resisting. Pulse 108, soft and feeble. Involuntary discharge of urine.

℞ Carbonat. Ammoniæ, gr. xij.; Sul-

phat. Quininæ, gr. vi.; Confect. Aromatic. q. s. fiat boli quatuor. sumat unum, 4tis horis. Eight ounces of wine. Foveantur crura.

14th.—Slept quietly during the night, with scarcely any delirium. Pulse much firmer.

15th.—Black crust of tongue breaking up and separating. Parotid swelling less hard.

16th.—A marked amendment in all respects.

18th.—Parotid swelling has become soft and fluctuating. A large quantity of thick, healthy, purulent matter has issued from an opening made in it.

He now quickly recovered.

It would be beside our immediate object to remark upon the different treatment which we applied to the same phenomenon—delirium occurring at different stages of the illness. Nor was this case singular in exhibiting this particular symptom a second time in its course; nor were wine and other even stronger stimulants less successful, when employed to meet its reappearance. This second delirium very much resembled, both in its nature and its treatment, the delirium which attends profuse hæmorrhage. We have the details of very many cases in which we experienced the signal efficacy of wine while this symptom was present. There is one in particular that occurs to us at this moment, in which the delirium deterred the nurse from giving the prescribed quantity of wine: we doubled it, and make no doubt that the patient's safety depended upon our having done so. We shall revert to this subject on a future occasion.

The cases here adduced are intended to exhibit the advantage which we found to attend the use of tartar emetic and opium in fever and febrile diseases, accompanied by cerebral excitement. As we remarked then, speaking of the same treatment then applied to delirium tremens, we accommodated the proportion of the ingredients of the combination to the degree in which the phenomena of irritation or congestion were most prominent. In some cases we employed tartar emetic with only so much opium as we deemed necessary to reconcile the stomach to it; and in some of these cases have exhibited twelve grains in a six-ounce mixture, with thirty drops of laudanum—an ounce every two hours. We have been asked, what has been the *modus operandi* of the medicine? We would reply, that we attribute its effects partly to its sedative action on the circulation, and partly to its setting up on the surface to which it is applied an irritation which counteracts that of the cerebral organ. We have seen, in some cases, tolerance of the remedy has existed up to a certain time, then the stomach rejected it, and the cerebral excitement now ceased and reason returned: however, this did not occur sufficiently often to lead us to expect that we were likely to have from hence as certain a rule for its exhibition as in pneumonia. We had one of these cases marked by extreme irritability of the stomach, which did not even retain cold water. We exhibited the tartar emetic in solution, and, however paradoxical it may appear, it was not rejected: perhaps we might explain it by supposing that the action of the tartar emetic on the irritable mucous membrane of the stomach resembled that of a blister on an erysipelatous surface, which produces its effect by superseding the original inflammation. We are free to confess, that we have found the tartar emetic, in some cases, produce a degree of gastric irritation, which we were obliged to meet by leeches and even blisters, but always found it to yield readily to these means.

Although we have many cases which we could add in illustration of this practice, as applied to this modification of fever, and some, perhaps, more striking than those detailed, we have purposely confined ourselves to those treated before Dr. Graves' observations on the subject appeared. We have also only detailed cases which have occurred in hospital under the observation of the pupils, who attended our visit. If the cases bear a comparatively recent date, it is because the fever which exhibited itself at the period, and which has continued to prevail more or less since, presented the peculiarity which, assimilating it to delirium tremens, suggested the probable success of a similar treatment. It is not our fault that these observations did not get earlier publicity, as *many months* have passed since we applied to one of the editors of the Dublin Medical Journal to reserve us a place for their insertion, which he promised us; we remained under the assurance that they would appear, but were disappointed to

find that other material had obtained from other editors of the journal promise of earlier appearance, and thus have we had to submit to the inconvenience of "*qui novit neque id quod scit exprimit perinde est ac si nesciret.*" Trusting that the insertion of the foregoing observations will not be an unreasonable trespass on the limits of your valuable journal,

I have the honour to be, sir,
Your obedient servant,
ROBERT LAW, M.D.
One of the Physicians in Ordinary to Sir Patrick Dun's Hospital.

Dublin, July 21, 1836.

SKETCH

OF

THE MEDICAL INSTITUTIONS OF VIENNA.

By EDWIN LEE, ESQ.

VIENNA stands next to Paris among continental cities, with respect to the number and size of its public medical institutions. The most important of these is the General Hospital, erected in 1784, by Joseph the Second, in one of the suburbs, where it occupies a considerable extent of ground. The edifice is two stories high, encloses several spacious court-yards, planted with trees and shrubs, and is divided into a hundred and eleven apartments, containing altogether nearly three thousand beds. Few of the wards hold more than twenty beds each; they are for the most part extremely clean and airy. Besides the medical, which are the most numerous, and the surgical wards, the hospital comprises an obstetric department of more than three hundred beds, a syphilitic department of two hundred and fifty, cholera wards, others for eye patients, and for children affected with tinea capitis, and other cutaneous diseases.

It is supported by its proper funds, a trifling tax upon certain classes of the population, and by the payments which the patients are called upon to make, according as they belong to the first, second, or third class. Each patient of the first class pays forty florins per month, for which he is entitled to a separate room, bedding, and food of a superior description, and the exclusive attendance of a nurse. Those of the second class pay each twenty-seven florins, are placed in wards, with food and bedding of a quality somewhat inferior. The third class pay nine florins a month, or, if unable, it is paid by their masters (if in service) or by the hospital.

Two physicians, two surgeons, and two obstetric physicians, are the principal medical attendants. Each physician and surgeon has four assistants: the clinical assistants are appointed for four years, reside constantly in the house, and receive an annual salary of four hundred florins. To the assistants is confided the care of the patients in general, as the principals mostly restrict their attendance to the clinical wards, to which the most interesting cases are transferred. Visits are made both in the morning and afternoon. Special professional attendants are attached to the syphilitic, cholera, and ophthalmic departments.

Vienna does not rank high as a medical or surgical school. Expectant measures appear to be chiefly trusted to in the treatment of disease. The study of morbid anatomy is not very zealously pursued; and the aid of auscultation or percussion is not sought in the investigation of diseased states of parts during life. In pneumonia and other inflammatory diseases, where the abstraction of blood is indicated, it is seldom energetically made; and in many cases is superseded by the exhibition of tartarized antimony, mucilaginous potions, and counter-irritation. In idiopathic fever, bleeding is rarely had recourse to: when attended with symptoms of gastric or intestinal irritation, leeches are sometimes applied to the abdomen; nitrated or mucilaginous potions are the medicines most frequently prescribed; purgatives are seldom used. In adynamic or ataxic states, diffusible stimuli—as ether, ammonia, camphor, with aromatics and tonics—are occasionally employed. Intermittents are usually treated by expectant remedies, with an occasional mild laxative: when of long duration, bark is resorted to. Scrofulous diseases are very prevalent in Vienna, and scorbutic affections are not unfrequent. A light tonic regimen, bitters, and mineral acids, are the principal remedies in these cases. Iodine is not used to combat the former complaints.

The cholera wards did not contain, at the period of my visit, more than a dozen cases, all females. An invariable method of treatment is adopted, consisting of the frequent exhibition of small lumps of ice, which are allowed to dissolve slowly in the mouth, the limbs being at the same time enveloped in cloths wetted with cold water. The same treatment was pursued during the endemic prevalence of the disease, notwithstanding the great mortality among the patients. In the town, however, this plan met with but few adopters; here, as elsewhere, a variety of means were tried by different practitioners, and in the clinical wards, to which choleretic patients are sometimes sent, to afford the pupils an opportunity of seeing the results of different practice, a treatment totally opposed to the former is followed; stimulants, hot drinks, and fomentations, being the means usually employed. The average mortality by this method was one in five. From the circumstance of patients with cholera being transferred to other wards, it will be seen that the disease is not considered contagious at Vienna.

There are only twenty-four beds in the surgical clinique. The cases in the other wards mostly consist of ulcers and other chronic affections. It is only in diseases depending upon constitutional taint that the operation of internal medicines is sought; in the majority of cases, local or simply antiphlogistic means are relied upon. The operations most frequently performed are amputations. Aneurism is rare, and stone not frequent: only five operations of lithotomy had been performed in Vienna within twelve months. Lithotrity has been done three times by Professor Wattmann, these being the only instances in which it has been attempted in the Austrian States. For incising the neck of the bladder in the lateral operation, a sharp-pointed lithotome, nearly as broad as a cutting gorget, is generally used. A patient, who had undergone the operation six months previously, was still in the hospital at the time of my attendance, in consequence of a fistulous communication between the bladder and the rectum, resulting from the incision of this gut at the time. Among the other patients in the clinique were three with disease of the knee-joint, in which the hard textures were affected; one of these was termed hydrocele of the knee: the means employed had been little else than leeches and cold lotions in the earlier period, and subsequently fomentations—no counter-irritation had been established in the neighbourhood of the joint; this means being usually reverted to only in cases of diseased hip-joint, when a large surface of the hip is cauterised by the actual cautery. Scrotal hydrocele is treated by incision or excision; the plan of treatment by injection is not adopted.

There were also, in the clinical wards—a girl with scrofulous abscess in the axilla which had been opened; the wound did not readily heal, and the patient was prescribed arsenic, with no local amelioration, but the general health had become deranged by the remedy. A case of ulceration of the ala nasi, for which the patient had been taking mercury without any benefit resulting. An old woman, in whom the union of a fractured thigh had taken place, although with considerable irregularity and shortening of the limb. In these cases the practice usually consists in the application of splints around the thigh, not extending beyond the knee; there are, consequently, no efficient means of keeping up a proper degree of extension.

In the syphilitic wards patients are treated, as at Berlin, by abstinence, the quantity of food allowed being extremely limited; and their friends are not allowed to visit them during their residence in the hospital. Mercury is not used in any case, the most usual remedy being the decoctum Sydenhami, of which sarsaparilla is the principal ingredient. The results of this treatment, which is said to be so successful at Berlin, are not such as to induce the practitioners of the city to adopt it. I was informed that patients were long under treatment, and that secondary symptoms often recurred with severity.

Women, married or unmarried, in the eighth or ninth month of pregnancy, are received, on application at the obstetric division. No one is asked her name or condition, but each is required to bring a sealed paper, containing the christian and family name, with other particulars. On this paper is marked the ward, the number of the bed, and the name of the accoucheur. When the woman quits the hospital, she takes it away again without the seal having

been broken, which is only done in case of death. The children may either be left in the hospital, or taken away by the mothers. Like the other inmates of the hospital, pregnant women are divided into three classes, paying different sums monthly: those of the first class have a private room, where no one except the physician and nurse are allowed to enter; those of the third class occupy airy wards, and are employed till the time of their accouchement in knitting, spinning, and other avocations; they are also required to nurse children from the foundling hospital. Upwards of three thousand deliveries take place annually. I was given to understand that the mortality was great, in consequence of puerperal fever, the treatment of which does not appear to be energetic, consisting, in ordinary cases, of cooling and demulcent drinks; where inflammation runs high, leeches to the abdomen, or the occasional abstraction of blood from the arm. Aperients are but sparingly given.

The eye cliniques of Vienna are deservedly considered the first in Germany, and are annually resorted to by numbers of students from various countries; that at the hospital is under the direction of Professor Rosas, who passes each one in review, makes his observation, and requires his pupils to examine publicly the patients, entering minutely into the peculiar circumstances, to state their diagnosis and method of treatment, which he approves or rectifies,—thus giving rise to much useful discussion, in the advantages of which all participate. The treatment is both general and local, internal medicines being given in most cases; the local treatment is mostly antiphlogistic, revulsive stimulants not being so freely used; though in many cases of chronic inflammation the lotion of hydrarg. oxymuriat. is preferred to depletives. Prof. Rosas mostly operates for cataract by extraction, although he is not attached exclusively to this method, and not unfrequently operates with the needle, puncturing the sclerotica or cornea, according to circumstances.

As this statement has perhaps already exceeded the limits allotted to similar communications, I must postpone to a future occasion the remarks I have to make on the other establishments.

London, July 24, 1836.

FURTHER OBSERVATIONS UPON RHEUMATIC CARDITIS.

By Dr. Watson.

Henry Thorpe, a painter, aged 19, admitted into the Middlesex Hospital, May 24, 1836. Face pale and anxious; left knee and right ankle swollen and painful; tongue furred; pulse frequent; skin hot.

The pain and swelling of the joints commenced four or five days ago. In a day or two afterwards he began to have pain beneath the sternum, especially when he spoke, or inspired deeply, with a fluttering sensation in his breast, and a feeling of weight that impeded his breathing. Has been delirious at night.

Ten years ago he had "inflammation of the chest." Since that time his "heart has never been comfortable." Has been subject to palpitation, especially upon unusual exertion, for four or five years. His joints were never affected before.

After he was in bed, the chest was more particularly examined. The heart's action was irregular, and very rapid; its systolic movement attended with a deep-seated bellows sound.

On the evening of the 25th, the rheumatism had quite left his joints, and the pain in the cardiac region had nearly ceased. The heart's action was much more slow and steady; the deep-seated blowing sound very distinct.

On the morning of the 26th he was found to have passed an almost sleepless night; the pain in the region of the heart had returned, with much dyspnœa; and now, for the first time, a loud *to-and-fro*, or rubbing sound, was audible. This was most strikingly perceived over the base of the heart, while the bellows sound was still heard at its apex. He starts awake from short and disturbed slumber, in alarm, and with a sensation (he says) as though he were falling from a height.

From this period the *to-and-fro* or rubbing sound continued, but gradually diminishing in extent and loudness, till the 13th of June. On that day not a trace of it could be perceived. It never returned. The systolic bellows sound remained very audible.

Though some pain recurred from time to time, he progressively improved up to the 29th of June. The details of his condition, and of the treatment adopted

from day to day, would be tedious. It may be stated generally as follows:—

Leeches were repeatedly applied to the præcordia, always with marked relief to the pain and palpitation. On the day of his admission, after the operation of a purgative containing colchicum, he began to take three grains of calomel and a quarter of a grain of opium every four hours. On the 27th, five grains of blue pill were added to each dose; and on the 30th, half a drachm of strong mercurial ointment was directed to be rubbed into his thighs night and morning. His gums did not become at all tender till the 2d of June: they were kept slightly so for a considerable time. On the 20th of June he began to take ten minims of the tincture of digitalis twice in the day. This had no perceptible influence on his pulse, but he was less troubled with palpitation from that time.

On Wednesday, the 29th of June, as on most other days, his chest was carefully examined. The heart beat with a strong and heaving impulse; a loud blowing sound accompanied each systole: this sound, and the stroke of the heart against the ribs, preceded the pulse at the wrist by a very sensible space of time. He thought himself well; declared that he suffered no pain, and not more palpitation than he had frequently experienced previously to his illness. It was arranged that he should be made an out-patient on the following Tuesday.

At the close of the afternoon he was sitting, with some other convalescent patients, in the garden of the hospital. Suddenly, while engaged in earnest conversation, he fell, dead, from his seat.

His body was examined the next day at one o'clock.

The blood was every where fluid.

Brain.—Veins turgid; slight serous effusion into the ventricles, and beneath the arachnoid, which membrane, at the base of the brain, was rendered partially opaque by delicate bluish white points and lines.

Chest.—Heart enormous. The pericardium adhered to the right lung, to the costal pleura on the left side, and extensively to the diaphragm. The left lung was almost every where attached to the ribs by adhesions that were easily broken down; the pericardium adhered also at all points internally to the heart, except over a small portion of the posterior part of the right ventricle. The medium of adhesion was of considerable thickness: over the left ventricle it consisted mainly of a layer of coagulated half-organized blood; over the right ventricle it was of a yellow colour, and looked like infiltrated cellular tissue. The pericardium was stripped off as one would skin a rabbit, and with about the same ease; the adhesion was the least firm where it consisted of red blood, and here the separated surfaces, dotted with purple points, resembled the pulp of a ripe fig.

The cavities, valves, and muscular substance on the right side, were natural and healthy; perhaps the ventricle was a trifle larger than it should be. The left auricle large; its inner membrane opaque and granular. The mitral valve large, but healthy, with the exception of a slight degree of thickening towards its edge. The left ventricle enormous in capacity; its walls very much thickened; the two main columnæ carneæ belonging to the mitral valve very large. The aortic valves irregularly thickened and stiff; an opaque thick band, projecting above the general surface, extended from their base for half an inch down the inner wall of the ventricle; and even beyond this, for a considerable space, the membrane had lost its natural transparency, and had a milky appearance. An isolated strip of lymph was seen gluing together the opposite surfaces of two contiguous columnæ carneæ. A slight atheromatous deposit at the entrance of the aorta.

Abdomen.—Liver of a dark purple colour; gall-bladder empty; stomach and intestines distended with gas.

This case has been extremely interesting to me, as furnishing a link in the chain of evidence whereby the pathology of rheumatic pericarditis is illustrated in its clinical history.

In some lectures upon rheumatism of the heart, addressed in the early part of last year to the pupils of the hospital, and afterwards printed in the MEDICAL GAZETTE *, I endeavoured to classify and interpret certain signs, by which I thought the special diagnosis of rheumatic carditis might be positively determined. It was impossible that these signs could long escape the ob-

* Vol. xvi. pp. 56, 91, and 164.

servation of any one who happened to treat many cases of acute rheumatism, and who had learned to investigate diseases of the chest through the sense of hearing. Excepting, however, some printed controversy respecting them, between pupils of the hospital, I was not then aware that they had ever been publicly noticed. Yet a very good account of the signs in question had been published by Dr. Stokes, of Dublin, in 1833. Just after my lectures were printed, and some months after they were delivered, M. Bouillaud's work on Diseases of the Heart reached this country. He also had discovered the same signs, and convinced himself of their importance. This concurrent testimony of independent observers proves the frequency, and the essential character, of these symptoms in rheumatic carditis. Some of M. Bouillaud's opinions respecting that terrible malady coincide exactly with my own; but he holds others which I believe to be erroneous. I would venture respectfully to refer those who may take an interest in these questions, to the statements contained in the lectures already mentioned. The chief points which I endeavoured to establish were the following:—

1. That whenever the superficial sound of friction—what I have termed the *to-and fro* sound—*comes on during acute rheumatism of the joints*, or *suddenly supervenes, without rheumatism, in a heart previously healthy*, it always and surely denotes inflammation of the pericardium *.

2. That whenever, in acute rheumatism, a deep-seated bellows sound *comes on*, it always denotes inflammation of the lining membrane of the heart; and especially of that part of the membrane which belongs to the valves.

3. That these two sounds are, in most cases, perfectly distinct, and easily distinguishable from each other.

4. That the *to-and-fro* or rubbing sound is never of long duration, and that it terminates in one of two ways:

Either the patient dies in a short time, the sound continuing to the last: and then the pericardium is found coated with rough lymph, but throughout the far greater part of its extent, or altogether, unadherent;

Or, the sound ceases, never to return, while the condition of the patient improves, or he even seems, to himself and to others, to recover his perfect health. In these cases the sound ceases from a physical impossibility of its continuance—viz. from adhesion of the pericardium over the whole, or the greater part, of the surface of the heart. In this category of apparent but unreal recoveries, I cannot doubt that many of M. Bouillaud's "*Observations de péricardite terminée par la guérison*" ought to be included.

5. It follows as a corollary from the foregoing propositions, that acute pericarditis, so far advanced as to occasion the pathognomonic rubbing sound, does not admit of a perfect cure; and that its best event is the adhesion of the membrane, and the obliteration of its cavity.

In support of these propositions, I related two cases of acute pericarditis, in which the *to-and-fro* sound was clearly marked, and did not cease till the patients died. In one of these cases death took place on the seventh day from the commencement of the cardiac symptoms; in the other, on the fifteenth day. In one, no traces of recent disease were discoverable, except in the pericardium; in both, that membrane was universally coated with rough lymph.

I referred also to six other cases, in which the sound of attrition had been no less unequivocal—had ceased after a certain number of days, varying from four to eighteen,—and had never returned. In all these cases the patients recovered sufficiently to leave the hospital.

Since those lectures were given, I have seen, among my own patients and those of my colleagues, several more examples of precisely the same thing. Some of my former patients also have returned (as I expected they would), labouring under organic disease of the heart. In none of them have I known the peculiar rubbing sound to recur.

The case of H. Thorpe, related above, is the first and only case in which, the *to-and-fro* or rubbing sound having totally and for some time disappeared, I have had an opportunity of inspecting the heart. The almost complete adhesion of the pericardium is in accordance with the views just expressed.

* These *conditions* are necessary, because a bellows sound may attend each movement of the heart, in consequence of internal disease of some standing; and this *double* bellows sound might be confounded with the alternating noises produced by the attrition of the opposite surfaces of the pericardium.

There are other and obvious points of interest connected with the case, but I forbear to dwell upon them.

More than the experience of a few years, or of any single observer during many years, will be required to render the foregoing propositions certain. I offer them, as consistent with all that I have hitherto seen, for confirmation or rejection by a more extensive induction of facts.

In the last number but one of the MEDICAL GAZETTE, a case of rheumatic pericarditis, with comments by Dr. Roots, is quoted from the fourth number of the St. Thomas's Hospital Reports. The case illustrates, extremely well, several of the points that I have mentioned. Dr. Roots expresses his belief, that acute pericarditis is susceptible of complete repair, even after lymph has been effused, and the sound of attrition been heard.

His opinion appears to be grounded, 1st, upon the total disappearance, in many instances, of all the symptoms of pericarditis. 2dly, Upon the frequent occurrence of white spots upon the heart, denoting foregone inflammation—without adhesion.

I have already stated my own persuasion, founded solely upon what I have myself been able to observe, that the appearance of recovery in such cases is fallacious. Simple adhesion of the pericardium may indeed exist for some time, without much interfering with the functions of the heart, and without revealing itself to the ear of the physician; but I cannot agree with M. Bouillaud in thinking it a completely innocent or unimportant condition, and one which does not necessarily embarrass the play of the heart. On the contrary, I believe that it always, however gradually, leads to further change, which sooner or later declares itself by symptoms.

With respect to the white spots on the surface of the heart, I entertain no doubt that they result from a process of inflammation. Several years ago, I found the central part of one such spot connected with the loose portion of the pericardium by a thin bridle of lymph.* But the inflammation in these cases is probably slight and chronic as well as partial. The white spots are perhaps as frequently present as absent, even in cases where no account of previous carditis can be traced. My observations apply only to acute and general pericarditis, such as occurs in connexion with acute rheumatism. Every one having charge of a hospital must know, that many patients who have once had symptoms of rheumatic pericarditis, get better and go away, but return again and again at uncertain intervals, with fresh attacks of rheumatism, and renewed distress about the heart. Now, in these cases we do not meet with the rubbing sound *oftener than once*—as we might expect to do if Dr. Roots' opinion be correct.

If the *to-and-fro* sound should ever be heard, and quite cease, and then at a subsequent period recur, this would afford a strong presumption that my explanation of the cause of its cessation is not applicable to all cases.

Again, if after the *to-and-fro* sound has unequivocally existed, and has altogether ceased, and the patient dies some time afterwards, the pericardium should ever be found unadherent, this would be fatal to the universality of my supposition.

Supposing my explanation to be universally true, it would follow that, although there may be no certain sign of an adherent pericardium deducible from the actual condition of a patient at a given time, it may often be confidently affirmed from a thorough historical knowledge of the case.

T. W.

Henrietta Street, Cavendish Square,
July 26th, 1836.

* MEDICAL GAZETTE, vol. i. p. 321.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

Researches in Medicine and Medical Jurisprudence. By JOHN B. BECK, M.D., Professor of Materia Medica and Medical Jurisprudence, New York, &c. New York and Albany, 1835.

THE volume bearing this title is a collection of the author's papers which have already been presented to the public in a detached shape. There are five of them altogether: 1. the treatise on Infanticide, which is well known, from its having formed the chapter on that subject in Dr. T. R. Beck's popular Elements of Medical Jurisprudence; 2. a paper on Acute

Laryngitis; 3. one on the Non-contagiousness of Yellow Fever; 4. one on Onychia Maligna; and, lastly, an interesting case and remarks, which we shall take leave to extract, as it may be new to most of our readers. The subject is one of deep importance.

History of a case of Ulceration and Perforation of the Stomach, with Observations.

In the month of January, 1820, I was requested to visit Mrs. P——, aged sixty years, who I learned had been ill for some months previously. I found her labouring under very decided symptoms of hydrothorax, together with œdema of the lower extremities. The difficulty of breathing was so great as to render the recumbent posture utterly impracticable. She complained of no pain or uneasiness in the region of the stomach, and was not troubled with nausea or vomiting, although her appetite had in a great measure left her. From the hopeless condition in which the patient was found, it was evident that nothing could rescue her from speedy dissolution. Some medicine, however, was ordered, which she took very readily, and retained on the stomach, as she did also all her drinks and nourishment. No relief was obtained, and she died in a few days after I first saw her.

Dissection.—Leave being obtained, my friend, the late Dr. James K. Platt, and myself, opened the body on the morning succeeding the day of the patient's death. In the chest were found traces of considerable previous disease. Extensive adhesions of the pleura to the parietes of the chest had taken place. The extremity of the left lung was indurated, and instantly sunk on being put into water. Within the pericardium, and in the cavity of the chest, nearly a quart of fluid had been effused. On opening the abdomen, the liver was found in a perfectly sound condition, as were also the pancreas and spleen. Greatly to our surprise, the stomach was discovered to be the seat of very striking and interesting morbid changes. The whole of the inner surface of this organ presented a highly florid and vascular appearance, and along the lesser curvature there were *five ulcers*, one of which, situated about midway between the cardia and polyrus, had penetrated quite through the different coats of the stomach, and formed a circular hole of about the size of a shilling. The remaining four ulcers were of various sizes, not differing much, however, in this respect, from the one just described. The edges of the ulcers were a good deal thickened, and very smooth. This was more especially the case with the one which perforated the stomach. All of them were surrounded by the vascular appearance already mentioned as characterizing the inner coat. None of the contents of the stomach had escaped into the abdomen. That this had not taken place is to be ascribed entirely to the situation of the perforation. The stomach itself was found to contain about a pint of fluid. It will readily be imagined that the morbid appearances just described were wholly unexpected, as I had not been aware that any symptoms of a diseased state of the stomach had been betrayed before death. With the view, however, of obtaining more accurate information on this point, I inquired minutely into the previous history of the patient, and ascertained that she had been asthmatic, but that she had never complained of pain or uneasiness in her stomach; had never been troubled with vomiting; and that her appetite had remained tolerably good until three or four weeks of her death.

OBSERVATIONS.

Ulcerations of the stomach similar to those which have just been recorded, although not wholly unnoticed by preceding writers, are of so rare occurrence, that their symptoms and causes are as yet very imperfectly understood. Even Dr. Baillie, who has described with graphic accuracy the morbid appearances peculiar to them*, is by no means so full and satisfactory in his account of the symptoms as could have been wished. There is one circumstance especially connected with their history which he has failed to notice; and this is, that they may frequently go to the length even of perforating all the coats of the stomach without having the fact betrayed by a single symptom. The case which I have just recorded proves this in a very striking manner. There was certainly no evidence present before death of any diseased condition of the stomach, and the death of the patient was entirely owing to the dropsical

* The Morbid Anatomy of some of the most important parts of the Human Body, by Matthew Baillie, M.D.F.R.S., p. 99, American edition.

affection of the chest. There is every probability, too, that had she not fallen a victim to this latter disease, she might have lived a considerable time longer, notwithstanding the ulcerations in her stomach. The same general fact is confirmed by the history of several other cases found on record.

That accurate observer, Dr. Pemberton, states that he has often been surprised to find very extensive mischief in the structure of the stomach, without the constitution being sensibly affected by it, provided the mischief was so situated as not to interrupt the passage of the food. In confirmation of this, he relates that he had seen a large schirrus in the stomach, near the pylorus, with an open cancer in one part of it, which had made its way through the stomach, and through the left lobe of the liver; and an adhesion had taken place between the sides of the abscess and the peritoneum; so that, he adds, "had not the patient been taken off by disease in the aorta, I have no doubt but that this abscess would have made its way out through the integuments of the abdomen. Still, however, though this must have been a disease of very long standing, the body was but little emaciated, and the patient *had never shown any symptom by which such a disease of the stomach could possibly have been suspected**."

Dr. Crampton, Professor of Materia Medica in Dublin, has favoured us with the history of another case of ulceration of the stomach, succeeded by perforation and the subsequent effusion of the contents of the stomach into the cavity of the abdomen. The patient was suddenly seized with severe pain in her stomach, succeeded by the most agonizing pains in the whole abdomen. These continued without the least abatement until the moment of her death, which took place a very few hours after her first seizure. On dissection, there were found decided evidences of inflammation throughout the whole peritoneum, excited unquestionably by the escape of the contents of the stomach, and to this cause must the death of the patient be attributed. From the appearance of the perforation in the stomach, and other attending circumstances, it seems certain that the disease must have been of some considerable continuance; and yet there do not appear to have been any marked symptoms present by which it could have been detected. All that we are told of her previous history, is, that "she had been subject occasionally to pain in the stomach, as well as in both the hypochondria, but that they generally gave way to medical treatment of a few days*."

To the case of Dr. Crampton, Mr. Travers, of London, has added two or three others, confirming very strikingly the same general fact. In all of the cases related by this gentleman, the patients fell victims to the peritoneal inflammation excited by the effusion of the contents of the stomach; and in every instance, with a single exception, had they enjoyed good health until this effusion took place. I am aware that it may be objected, that as there is no positive evidence of any previous organic derangement, the perforation or rupture of the stomach may have taken place suddenly, without any antecedent ulceration. This explanation, however, is inadmissible. The absence of any adequate cause to produce such a sudden rupture of a healthy stomach, in the cases which have been referred to, as well as the appearances of the ulcers and perforations themselves, render this supposition wholly untenable. Nothing but the existence of a slow and protracted ulceration can at all account for these phenomena. That such ulceration does take place, and that it is followed by the consequences just mentioned, we have the very best possible evidence, even independent of that already adduced.

Mr. Benjamin Gooch, in his Chirurgical Works, details the particulars of a very extraordinary case, in which an opening was made into the stomach, as the result of a slight external injury received twenty years before. After receiving the injury, it is stated that the patient had transient wandering pains in the epigastric region, but never violent. In this state she remained ten years, when she was seized with an accidental fever, during the continuance of which the pains increased, and a small flat tumor appeared over the bottom of the stomach, without, however, any external inflammation or

* Practical Treatise on various Diseases of the Abdominal Viscera, p. 129, Am. Ed.

* Medico-Chirurgical Transactions of London, vol. viii. p 228.

throbbing, and unattended with any pain upon pressure. At this time she had no complaint in her stomach. When the fever left her she regained her former health, and continued ten years longer with very slight pains in the stomach and abdomen, but never to such a degree as to be troublesome. At the expiration of that period she was again attacked with fever, when the tumor became inflamed and enlarged, and finally burst, discharging through the opening the contents of the stomach. After this she was well enough to go about her ordinary business—"food agreed with her stomach; she had no sickness," and was not costive. She lived several months after this, and died of fever, brought on by an imprudent exposure to cold. On dissection, the stomach, around the orifice, was found adhering to the peritoneum; and by this kind provision of nature, the contents of the stomach were prevented from falling into the cavity of the abdomen*.

Dr. Male, of Birmingham, relates the case of a female, aged 15, who had been complaining for two or three days of slight pain in the bowels, when she was suddenly seized with symptoms of enteritis. Her countenance was pale and ghastly; pulse 150; bowels costive, &c. She expired in a few hours after the attack. On opening the body, appearances of general inflammation were found in the abdomen. "The stomach was empty, and appeared partially inflamed; and in the superior part, near the cardia, was a foramen, nearly circular, about three-quarters of an inch in diameter, perfectly smooth and regular; it had not at all the appearance of having been eroded by the gastric juice, or of being the effect of *recent* inflammation. On the opposite side of the same organ was another foramen, nearly of an oval form, not quite half an inch in length, which, however, did not perforate the external coat of the stomach, but had apparently formerly done so, and afterwards became closed, and the edges united by a cicatrix; the other parts of the stomach were perfectly sound."

Dr. Male states, that on inquiry he found the patient had an attack of gastritis and enteritis about four years previously, since which she had been troubled with occasional pains in her stomach*.

From an analysis of the foregoing cases, as well as a few others which are upon record, I think we may deduce the following conclusions:

(*a.*) That the peculiar ulceration of the stomach, just described, is very slow in its progress.

(*b.*) That it is frequently unattended by any symptoms indicative of its existence†.

(*c.*) That of the symptoms mentioned by Dr. Baillie, "pain or an uneasy feeling in the stomach," is the only one usually present; and that vomiting seldom occurs.

(*d.*) That with the exception of the ulcerated portion, the stomach is generally found healthy.

(*e.*) That no immediate danger to the life of the patient attends simple ulcers of the stomach.

(*f.*) That where death does ensue, it is generally the result of peritoneal inflammation, excited by the ulceration having perforated the stomach, and the subsequent effusion of the contents of that organ into the cavity of the abdomen. When this event takes place, no hope is left for the patient. Death seems inevitable. The symptoms attending this state are very well described by Mr. Travers, and are the following:

1. Sudden, most acute and unremitting pain, radiating from the scrobiculus cordis, or the navel, to the circumference of the trunk, and even to the limbs. "I may add," says he, "a peculiar pain, though I know not how to describe the peculiarity. Its intensity, like that of parturition, absorbs the whole mind of the patient, who, within an hour from the enjoyment of perfect health, expresses his serious and decided conviction, that if the pain be not speedily alleviated, he must die.

2. "Coeval with the attack of pain, remarkable rigidity and hardness of the

* Gooch's Chirurgical Works, vol. iii. p. 163.

* London Medical and Physical Journal, vol. xiii. p. 164.

† The whole account given by Dr. Baillie of the symptoms, is the following: "I have reason to believe that ulcers of the stomach are often slow in their progress. They are attended with pain or an uneasy feeling in the stomach, and what is swallowed is frequently rejected by vomiting. Pus and blood are likewise occasionally thrown up by vomiting. (Morbid Anatomy, p. 97.)

belly, from a fixed and spastic contraction of the abdominal muscles.

3. "A natural pulse for some hours, until the symptoms are merged in those of acute peritonitis, and its fatal termination in the adhesive stage*."

The *causes* of these ulcers are enveloped in much obscurity. Indeed, in most of the cases, there are none to which they can be referred. In a few instances only have they been traced.

1. External injuries, as blows, &c. upon the region of the stomach. In the case of Mr. Gooch, already recorded, there can be no doubt that this was the cause, although the injury was received twenty years before. As there was no external appearance of inflammation in this instance, it is probable that the stomach was primarily affected by the injury received; but it is impossible to determine whether the peritoneal or mucous coat was first affected. At any rate, however, it makes us acquainted with a possible consequence of slight external injuries about the region of the stomach, of so serious a character, that every possible precaution should be adopted to obviate their effects†.

2. Previous disease of the stomach. In the case of Dr. Male, already related, an attack of gastritis, four years before, seems to have been the only assignable cause.

3. The accidental introduction of some poisonous substance into the stomach. I am not positive that this has actually been a cause of ulceration in the stomach, although it is more than probable. Dr. Pascalis records a case of perforation of the stomach, with which it appeared that the patient had lived five or six years. On dissection there was discovered a large aperture, of the size of a dollar; and in the cavity of the stomach a large tumor, formed by several branches or roots, proceeding from the internal edge of the aperture in the fundus, and lined with a strong membrane, resembling the villous coat of the stomach. Dr. P. informs us that the patient was a painter and glazier by trade, and must have been exposed to the accidental introduction of arsenical or other deleterious matters into the stomach*.

4. Improper and stimulating food, as well as the too frequent use of certain medicines, may doubtless in some instances have caused it, although I have not met with any particular case in which it could be traced to this source.

Cases like the preceding are interesting and important, not only in a pathological point of view, but in their relations to medical jurisprudence. Appearances like those which have been described may be confounded with the effects of poisons; and their diagnosis may become, therefore, a problem of the highest moment—involving character and even life. On this point, however, it is not my intention at present to enlarge. It has been discussed by writers of acknowledged authority, and to these I must refer the reader†.

Before closing this notice of Dr. John Beck's volume, we shall venture to add a word or two respecting the article on Infanticide. It is, indeed, an elaborate production, showing much industry and zeal on the part of the author: but owing to the successive additions made to it in the various editions which have appeared, it has grown into a very needlessly bulky treatise, containing much matter that is totally unnecessary for practical purposes. We could show that in some parts much discretion and exactitude have not been employed in turning the researches of others to account, and that after all there are omissions in the work which render it in certain respects incomplete. What we beg to suggest is, that in future editions Dr. Beck should turn his attention to rendering his performance more compact and practical, simplifying his arrangement, and lopping off redundancies which can very well be spared.

* Medico-Chirurgical Transactions, vol. viii. p. 244 5.

† By Dr. Ebermaier, a case is related of a man, fifty years of age, who had complained every two or three months, for the last five years of his life, of pains in the abdomen. He died suddenly. On dissection, a hole, the size of a two franc piece, with callous edges, was found in the right anterior surface of the stomach. Five years before the commencement of the symptoms under which he laboured, he had received a blow from the pommel of a saddle on the epigastric region. (American Journal of Medical Sciences, vol. iii. p. 454.)

* Medical Repository, vol. xviii. p. 287.

† Considerations Médico-Légales sur les erosions et perforations spontanées de l'éstomac. Par G. Laisne. Paris, 1819.—A Treatise on Poisons, by Robert Christison, M.D. &c. p. 106.—Elements of Medical Jurisprudence, by T. R. Beck, M.D., and J. B. Beck, M.D., in the chapter on Poisons, by T. R. Beck, M.D. vol. 2, p. 273, 5th edition.

With the exercise of a little judgment of this sort—above all, by eschewing further augmentation of the bulk of the article—Dr. Beck may ultimately produce the most valuable tract on the subject of infanticide in the English or any other language.

Homœopathy and Allopathy; or, large, small, and atomic Doses. By David Uwins, M.D.

Dr. Uwins has become a convert to Homœopathy: what a serious impression the announcement of that fact must make on the medical world! "Alas," as the Doctor himself says, "allopathic carriages will soon be at a low discount." The doctrines of Hahnemann must henceforth ride triumphant.

But how kind of Dr. Uwins to come and give us warning! how generous!—for doubtless, as he says of a brother homœopath, "if he could only keep his own counsel, he might by this time have realized a splendid fortune by an empirical and *concealed* employment of his *new faculties*." He disdains, however, to keep the mighty secret from his brethren, and even comes forth with a pamphlet to tell *the public* with how very little physic he can cure them of all the evils incident to humanity.

A few extracts from this mighty good-natured and candid pamphlet may at once edify and amuse the reader.

The first experiment in homœopathy made by the Doctor, acted, it seems, like enchantment upon him: *it made him sweat.*

"The first homœopathic experiment I made was indeed in the true spirit of homœopathic procedure, made upon *myself*. A two-grain dose of James's powder was lying in my bed-room for intended use; and it occurred to me to take up by a moistened finger an unappreciable quantity, which I put on my tongue, and *in the night I broke out into a general and profuse perspiration.*"

Now for a trial on a patient—the first case recorded by Dr. Uwins.

"Mrs. ——, living near Woolwich, *had been beset by years with a full chorus of anomalous maladies* (!); acid secretions from the stomach, for which she had taken carbonate of soda, enough almost to neutralize all the acid contained in Apothecaries' Hall; pains, and low spirits, and sallow complexion, to which had been applied blue-pill, in its wonted forms and doses, to a very large amount. In a word, diet and medicine had been *aimed and aimed*, again and again, at her poor sensitive body and mind, so that the task of renovating seemed almost hopeless. *I gave her the forty-eighth part of a grain of blue pill*, which roused and excited *the functional dynamics* to such an extent as to prove 'more sensible in its agency than any thing she had ever before taken.' She at that time had no notion of any change in therapeutic principle; her imagination had nothing, therefore, to do with the effect; but she expressed herself as being sensible that *the right nail was now hit*, and that I had only *to continue my blows* to be far more successful than I had hitherto been with her. This case, according to its subsequent demands, was afterwards treated by '*the real Simon Pure*' atoms, and she now visits me rather to thank me for what I have done, than to ask for any thing further. I should say that after the first administration of blue pill, *I told her of Hahnemann, and Quin, and homœopathy;* and the reader may therefore refer, so far as it shall please him, the effects thus recorded to belief and fancy. The atoms she has taken have been principally aconite, belladonna, and *gold*, which last she would return me in *plentiful showers*, were she not a little restrained by the *res angusta domi*."

How very unfortunate, both for the lady and the Doctor! But could not the Doctor wait a little? he seems as impatient as the boy that had the hen laying him golden eggs. Dr. Uwins gave the lady little pills of gold, and then mentions it as remarkable that she *would* have returned the precious dose *in plentiful showers*, were she not a little confined—*restrained*, we should say—in her circumstances.

Consumption curable (?).

"Miss ——, Pentonville, whose sister had died of consumption. To this young lady I ordered medicines so exceedingly minute, according to admitted principles, that fearing her medical attendant would think I had made a mistake, I wrote at the corner of the prescription "Homœopathy," which *my friend Quin* would not have allowed me to be correct in doing. This young lady paid her third visit to me yesterday morning,

with the pallidness of her cheek exchanged for the bloom of health."

A "Digestive Organ" affair.

"Mrs. ——, near Burton Crescent, complained of pains in the stomach and in the head, and in the shoulders; indeed, to cut the matter short, this was a case which, in the vague language now much employed in medicine, would have been considered 'a digestive organ' affair. I gave her the oxymuriate of mercury in exceedingly small doses, and combined it with aconite, also in forty-eighth part of a grain dose, or the belladonna, I am not quite certain which. Her representation of effect was so completely at variance with the nothingness of operation which unbelievers suppose, that she mentioned, as one of the curious operations of the medicine, an increased redness and pain in a wound that had but just cicatrized."

Dr. Uwins makes a Convert.

"*A most interesting and intelligent practitioner* (!) in the Kent Road, said to me, when I was narrating my forty-eighth part of blue-pill experience, 'I am bound, sir, to believe it, *because you say it;* but I assure you that it is only from what I consider *high and disinterested authority*, that I could credit these apparent violations of all we have hitherto received as truth.' This very gentleman, only the day before yesterday, said, 'I am coming round, Dr. Uwins; I have done marvels with a forty-eighth part of a grain of belladonna.'"

This certainly was "a most interesting practitioner," with a proper sense of the importance of Dr. Uwins.

"A patient I attended with this gentleman, seemed to be *forced from the grasp of an apoplectic seizure by an atom of aurum*, with only six or eight leeches to his temples; and he is now taking two-minim doses of tincture of lyttæ, in an ounce and a half of aqua distillata."

Has the reader had enough of this silly affair? Poor Dr. Uwins, we pity him! By his own account, he has been puffed about by every wind of doctrine for the last 30 or 40 years. He is for the present a craniologist and a homœopath. What shall we find him next?

It has been said, that no man is ever converted to a new medical doctrine after 40 years of age. When Harvey published his discovery of the circulation of the blood, such was found to be the case. Dr. Uwins, however, is an exception to the rule, as it would seem. But there is surely some little difference between the doctrines of Hahnemann and Harvey; and, allowing Dr. U. the whole amount of the few grains of sagacity he could ever boast of, we question whether, if Harvey were the new apostle, the Doctor would have the common sense (fond as he is of novelty) to take up his staff and follow *him* with the same vivacity as he has *his friend Q—*.

MEDICAL GAZETTE.

Saturday, July 30, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

DISTURBANCES IN THE PARIS SCHOOL OF MEDICINE.

ALL the French medical journalists are agreed—and when they do agree, their unanimity is wonderful—that there has never occurred any thing, even in the Paris school at any former period, half so scandalous as the late riots. Had there been at the time any remarkable political excitement out of doors—a *barricade*, or a revolution—there might have been some excuse for the students also having their "glorious" day: but, no, there was nothing of the sort; the riots were the pure offspring of the *concours*, and never, perhaps, was there a more striking instance of the ridiculous folly of that method of determining the merits of candidates for professorships. In the abstract, be it observed, we have not the slightest objection to this pet ordeal of our French neighbours; but we say that it is unfit for their use—unfit for the purposes of any nation, attempting to conduct it in that spirit of ill-regulated liberty which prevails on the banks of Seine. How can other results than those which lately took place be expected from the *concours*, as

at present established in France? It has been wrung from the higher powers: it is thoroughly understood, by those competent to appreciate its tendencies and its fruits, as a mere mockery, calculated at best only to amuse, while it may readily be perverted to the most mischievous purposes. There is an appearance of open and fair dealing about it, we admit; but this is only where some one candidate has a vast superiority over his competitors: such a one triumphs—his success is "brilliant"—by the *concours*. But let there be an approximation of merit between any two or more of the *concurrents*, and justice can have no more than a mere chance of support: the matter is decided by the superior strength or clamour of the friends of some particular favourite:—or if not, there is a riot immediately—outrages are perpetrated, and the strong hand of power is obliged to interfere to quell the disorder.

So accustomed are even the steady people of Paris to those scenes, that they hesitate not to seek excuses for what they cannot prevent, and they coolly talk of the liberal allowances which must be made for the "manifestations of opinion," emanating from young men full of generous sentiments, and only misled by their own ardour. But admitting all these considerations, an apology is scarcely ventured to be offered for the gross irregularities which have recently taken place. "At every *concours*," says the *Gazette Médicale*, "there are cheerings, stampings of feet, and hissings in abundance: the judges and the candidates are prepared for this, and accommodate themselves to the circumstances, knowing that they have to deal with a numerous public, susceptible, full of hot blood, full of prejudices, and which must be tolerated for good or evil; such, in fact, being the condition of all such public trials. The public being admitted, and recognized, if not directly—yet virtually—appealed to, as witnesses for the *concurrents*, naturally give evidence of their presence and participation in the proceedings. It has, accordingly, been seldom attempted to check or suppress those *manifestations*, however made—being, indeed, not possible, if attempted. And what is endured or tacitly permitted during the trial, must be still more meekly submitted to, when it is over. Accordingly it very rarely happens that the announcement of the judges' decision is unattended with hissings and clamour; nor is this complained of. The defeated candidates receive it for consolation; the victors do not care for it; the judges do not hear it. Such are the allowances, large enough in all conscience, which must be made on every occasion of the sort; and in the late instance, *during* the trial, noise enough was assuredly made to satisfy the most obstinate partisans of the prerogatives of publicity. But can this justify what followed? We must say that the turbulence displayed, and the overt acts of violence done on the termination of this *concours*, can neither be justified by right, expediency, nor precedent of any sort."

The candidates, it will be recollected, on the occasion in question, were most of them men of first-rate qualifications. Besides M. Breschet, the successful party, there were MM. Blandin, Berard, Lebaudy, Chassaignac, &c., between whom the contest must have run very close: yet the young mob pretended to discover such transcendent merit in M. Broc, as to fancy themselves justified in adopting the most violent methods to assert his superiority! The events which ensued need not be repeated. They have excited the disgust of every one who has heard of them—a few interested and thoroughly malignant persons excepted—the sworn enemies of social order—who delight to dwell in the midst

of anarchy, and scruple not to pander to the worst of passions.

The school was closed but for two days, a space which was rendered absolutely necessary for repairing the dilapidations. The riots occurred on the Saturday: business recommenced on Wednesday,—when M. Orfila, Dean of the Faculty, came forward, and in a grave and solemn tone addressed the numerous auditory assembled for the lecture on physics.

"I cannot," said he, "allow the business of the school to be resumed without first calling your attention to the disturbances which have occurred: to pass them over in silence might lead to misrepresentation. What! That deeds worthy of the times of the Vandals should be done — that the professors should be insulted in their insignia—and yet the school, through me as her organ, not utter any complaint—or that I, your Dean, should suffer you to think that the faculty is satisfied with the suspension of two days, which has taken place, only for necessary repairs!

"No, gentlemen! the school, and the whole University, have felt the outrage offered them, and the *Moniteur* of to-day announces measures which will be followed up with rigour. Several of the guilty are in the hands of justice: justice will be done, and that we insist upon. The senate of the University also will act, and severe academical penalties will be inflicted on those who have been implicated in the riots.

"It is, however, not intended to punish indiscriminately: the innocent must not be confounded with the guilty,—as would be the case, were the school to be closed for the remainder of the season. We therefore resume the business of the classes; and I trust you will appreciate this lenity, which springs from our anxious regard for you. You will, I am sure, gentlemen, give me credit for being, upon all occasions, devoted to your interests, extending the means of instruction, and upholding the character of the faculty, the splendour of whose reputation is reflected on yourselves. But the disorderly conduct of your comrades is intolerable; and should it be repeated—should the respect due to your preceptors be again compromised—we shall assuredly avail ourselves of all the power which the law has committed to our hands.

"Certain journalists whose hostility is undisguised, and who address themselves to you, are endeavouring to deceive you as to our intentions and the steps we have taken in this affair. Beware, gentlemen, how you are led away by these perfidious guides, into actions which you may afterwards have to repent—when it will be no longer possible for you to retrieve the injury inflicted on your actual career and your prospects in life.

"Let those who will judge impartially of the truly benevolent disposition entertained by the authorities towards you, compare what has now taken place with what happened in 1822, and the terrible consequences which resulted from the disturbances of that period—disturbances far less serious than those which have just now occurred, but which, nevertheless, caused the school to be summarily, indiscriminately, and most severely dealt with (*frappée en masse*): compared with the measures then adopted, the proceedings now taken must be acknowledged to be fraught with a spirit of justice which seeks to reconcile the interests of the great body of the students with what is due to good order and the majesty of the laws."

The delivery of this address was followed by a round of unanimous applause.

It was reported in some of the journals that M. Orfila met with personal ill treatment in the riots: this was so far from being true, that although the Dean sometimes found himself in the midst of the rioters, he had no reason to be otherwise than pleased with the deference generally paid him. Even his professorial robe and insignia escaped, though deposited in an apartment where every thing else was ransacked and destroyed.

ANNIVERSARY MEETING OF THE PROVINCIAL MEDICAL ASSOCIATION.

The fourth annual meeting of this great society—now consisting, as we understand, of no less than 650 members—took place at Manchester, on Wednesday, the 20th instant. The former anniversaries held at Worcester, Bristol, Birmingham, and Oxford, served abun-

dantly to make known the nature and objects, and to establish the character, of this important institution; and at each successive reunion, large additions to the number of subscribers were regularly made: at the last, however, no less than from 100 to 150 new names were added to the list,—a proof (if further proof were needed) of its increasing popularity, as well as a pledge for its continued prosperity.

After the meeting at Oxford last year, where every thing went off with such *éclat*, it was thought that the maximum of attraction was attained, and that it would be difficult to keep up the interest in future. Notwithstanding this, the proceedings at Manchester may be said to have excited fully as much interest as those of the preceding year, while the attendance was decidedly better. Nothing could exceed, as we are informed, the liberality and kindness of the members resident in Manchester: they threw open their houses in the most hospitable manner to those who had come from a distance, and received their stranger-friends with every mark of attention and politeness.

The Royal Infirmary, Dispensary, Lunatic Asylum, the Museum of Natural History, the Cheetham Library, the Botanic Garden, and other establishments connected with literature, science, and the profession, were all freely opened for the inspection of the members of the Association.

Of the routine business transacted, it will not be necessary for us here to speak: the resolutions have been published, and will be seen duly set forth on our wrapper: the Report for 1836 we shall subjoin. But there were a few incidents which merit, however briefly, especial notice.

The retrospective address, by Mr. Crosse, of Norwich, gave great and general satisfaction. It was delivered in a style of energy and animation which left nothing to be desired. We shall be anxious to have an authentic copy of this able document, in order that we may make our readers more particularly acquainted with it.

Professor Kidd, of Oxford, read a paper of much erudition and research on the anatomical and physiological knowledge of Galen. It excited a very general interest, and is bespoken, we perceive, for the next volume of the Society's Transactions.

One other circumstance remains to be noticed, and we think deserves to be so in a most especial manner, though perhaps only collaterally connected with the affairs of the Association. Dr. Calthrop Williams, of Nottingham, in proposing a resolution respecting the conduct of the Poor-Law Commissioners, took occasion to allude to that part of Mr. Crosse's address which related to the Provincial Medical Schools, when he informed the meeting of a splendid act of munificence recently done by the Duke of Newcastle. Unsolicited, and guided purely by his own liberal and enlightened feelings, that nobleman has bestowed the sum of 500*l.* for the purpose of establishing a medical school in Nottingham. It is not often that our profession has to boast of a Mecænas of this princely kind: when it has, the praise that is justly due, it is hoped will not be sparingly withheld. For our own parts, we have only to say that it gives us the highest gratification to put on record this illustrious act of generosity and public spirit.

Among the members who visited Manchester on this occasion, were those whose names are contained in the following list:—

Dr. Kidd, Regius Professor of Medicine in the University of Oxford, and last year the President of the Association; Drs. Brown, of Sunderland; Francis Fox, of Brislington House; J. John

stone, of Birmingham; Shaw, of Leicester; H. T. Starr, of Leamington; Hastings and Streeton, of Worcester; Barlow, of Bath; Conolly, of Warwick; Crowther, of Wakefield; Moulson, of Halifax; Ashton and Turner, of Stockport; Kendrick, of Warrington; Goldie and Crawfoot, of Shrewsbury; J. C. Williams, of Nottingham; Dudley, of Stourbridge; Llewellyn Jones, of Chester; Black, of Boulton; Barnes, of Carlisle; Knight, of Sheffield; Walker, of Huddersfield; and Drs. Jefferys, Scott, Banning, Ramsay, Squires, and Macrorie, of Liverpool. Among the surgeons present, there were noticed Mr. William Evans, of the Madras Medical Service; Messrs. J. E. Johnson and J. G. Crosse, of Norwich; Messrs. Nankivell, of Coventry; H. W. Rumsey, of Chesham; R. Ceely, of Aylesbury; H. L. Smith, of Southam; J. Bedingfield, of Stowmarket; C. H. Hebb, Mayor of Worcester; T. L. Surrage, of Clifton, near Bristol; J. Griffiths, of Hereford; Beaumont, of Bradford; Wolstenholme, G. Mallett, J. Denham, and J. Moore, of Bolton; A. Sunderland, of Stalybridge; T. P. Teale, J. Hey, S. Smith, and Hare, of Leeds; W. B. Dickinson, of Macclesfield; Tudor, of Bath; J. A. Bennett, of Altrincham; J. Webster, of Derby; Bagnall, of Chester; G. W. Hardy, of Warrington; C. Lynn, of Runcorn; H. H. Broughton, of Dobcross; J. Dugdale, of Blackburne; Wood, and S. Kay, of Ashton; Wood, of Rochdale; J. Elliott, of Lees; W. and F. R. Tinker, of Hyde; B. Lupton, of Cheadle; F. Flower, of Chilcompton, near Bath; J. Medd, T. Mickly, T. Cheetham, J. Rayner, J. Brooke, J. Downs, R. Flint, and J. Thompson, of Stockport; J. Parr, of Liverpool; W. Begley, of Glossop; R. Brown, of Preston; T. Gough, of Kendall; F. Jones, of Ruthin, Denbighshire; R. C. Alexander, M. B. and R. H. Alexander, of Corsham, near Chippenham; J. Dudley, of Stourbridge; T. Fawcett, of Oldham, and J. Woodstock and W. Dunlop, of Bury. Of those practising in Manchester, Salford, or adjoining townships, there were present, Dr. Holme (the President), Drs. J. L. Bardesley, Lyon, Marshall, Wood, Harland, Howard, Clator, and Messrs. Turner, Jordan, Windsor, R. T. Hunt, D. Noble, J. E. Partington, J. Robertson, J. A. Ransome, J. Boutflower, H. Ollier, W. J. Wilson, W. Barker, A. M. Heath, H. F. Lewis, F. R. Kerr, J. Jesse, G. Plant, A. W. Dumville, Carew, W. B. Stott, J. Newbold, W. Cochrane, W. N. S. Cooper, J. Ainsworth, J. Garside, E. Holroyde, J. Ayre, R. Allen, S. Gaskell, Greaves, and W. W. Beever. The Rev. J. W. Kidd was present, as officiating chaplain.

REPORT OF THE COUNCIL OF THE PROVINCIAL ASSOCIATION, FOR 1836.

In returning to the annual duty which devolves upon the Council, of submitting to the members of the Association a short statement of those circumstances which appear necessary to put them in possession of the general outline of their proceedings, your Council cannot more effectually shew the rapid progress which this institution is making, than by alluding to such points as are of prominent importance. At the fourth anniversary of this Association, held in Manchester, a town long celebrated for its patronage of scientific societies, the Council have to announce the gratifying and encouraging fact, that the number of members now amounts to six hundred, being an increase of one hundred since the anniversary meeting at Oxford; whereas in the previous year the Association received an accession of fifty members, shewing, as your Council conceive, that the interest taken by the provincial profession, in the proceedings of this Society, is even greater than formerly.

In addition to this, since the Oxford meeting, our professional brethren in the eastern provinces have formed an Association on the same plan as our own, and have held two general meetings, one at Bury St. Edmunds, on the 25th day of September, 1835, when the Eastern Provincial Medical and Surgical Association was formed; and a second at Ipswich, on the 6th of June, 1836, when the members unanimously came to the resolution to seek an intimate connexion with the parent Association, for the purpose of co-operating with it in the advancement of medical science. That such a junction is desirable, every advocate for extensive and cordial union among the members of a profession which more than any other stands in need of some such bond, will admit; but opinions may vary as to the manner in which the junction should be effected. The overture made by our eastern brethren is explained by the following resolution passed by their Association at Ipswich, viz. that Mr. Crowfoot, of Beccles, Dr. Fisher, of Cambridge, Dr. Stevens, of Ely, Mr. Crosse, of Norwich,

Dr. Barrett, of Norwich, and Mr. Bedingfield, of Stowmarket, be appointed a Deputation to attend at the Manchester meeting of the parent Association, for the purpose of effecting a junction of the two Societies, with the view of jointly publishing Transactions, and holding, once in a few years, a meeting of the two Societies in one of the large towns of the eastern counties.

Your Council have also received, through the Secretary to the Eastern Association, a statement of the terms upon which the junction is proposed to be brought about by a highly respectable Committee of the eastern members; and we think it better to lay these terms before the assembled members of this Association, in order that they may be prepared to give a calm and patient consideration to this very important subject.

[The terms were stated in a late number of the MEDICAL GAZETTE, p. 616.]

Having laid before the meeting the terms proposed by the Committee of members of the Eastern Association, the Council leave it to the members to determine whether they will comply with these terms, or introduce others modifying the details; or whether they will come to the resolution of entertaining no proposition upon this subject, but such as has for its object to make the two Societies to all intents and purposes one.

The finances of the Association are, happily, in a state to give no cause for anxiety as to the failure of means to carry on the great objects which occupy our attention. The income for the past year, including what was in hand at the last meeting, amounts to £705, and the expenditure to £498 1s. 7d., leaving a balance of £206 18s. 5d. in the hands of the Treasurers. This balance is certainly considerable, if we advert to the expensive style in which our Transactions are got up. Still there are several defaulters among our members, and the list of arrears is heavy. On this account the Council recommend an improved mode of collecting the subscription of members by paid agents.

The present year has produced a greater number of contributions from members to the Transactions than any former one. This has necessarily led to the publication of a larger volume; and of the intrinsic merit of the communications the Council need only remark, that it is such as fully to sustain the high character of the previous volumes. The Council cannot forbear regretting that so few of the large provincial hospitals and infirmaries send statistical records and reports of their cases; but they hope that the various considerations that should prompt the medical officers of these institutions to increased zeal in this particular, which are stated in the interesting and instructive observations made by Dr. Walker, on the Medical Charities of England and Ireland, will have their due and proper effect on the enlightened members of this Association. The Council owe an apology to several members of the Association who have sent contributions highly deserving of publication, but they will see at once by referring to the size of the volume, that the limits within which the Council are necessarily restrained, have compelled them to postpone the publication of these communications till the appearance of another volume.

As there are several Reports, on special subjects of investigation, to be delivered in at the present meeting, some of which will be postponed to a future anniversary, the Council do not think it desirable to nominate any Committees for the purpose of drawing up Reports for the next year's anniversary meeting; but they are of opinion that it is desirable to call the attention of the Association to a subject which they deem of great importance. The investigation of epidemic diseases was one of the first objects to which the attention of the Association was directed. It was announced in the prospectus issued by the first Committee, and adopted and confirmed at the general meeting at Worcester, in 1832. Impressed with the importance of the subject, the Council now recommend it to the notice of the Association, in the confident expectation that the united efforts of its members will tend to remove the obscurity which at present envelops that class of diseases. The Council perfectly agree with one of the latest writers on the subject, the able author of the article Epidemics, in the Cyclopædia of Practical Medicine, that "if medical observers had been content to mark with simplicity the series of events belonging to epidemics, like Hippocrates and Sydenham, we should not have been so much in the dark at the present day." Convinced that an extensive accumulation of facts is, above all things, essential, the Council earnestly request each member of the Association to keep a register of the rise, progress, and decline, of epidemics in his district, being very particular as to dates and localities; and as the object desired is to discover, if possible, the effects of *external influences* in the production and propagation of these diseases, the condition of the atmosphere should also be registered, particularly its barometric, thermometric, and hygrometric states; these, as indicated by the proper instruments, it is hoped may not be found troublesome, when the value of all actual observations bearing

upon this subject is considered. The object at present is not to build a theory, but to record facts, from which useful deductions may eventually be drawn; and having stated this, the Council feel satisfied that each member will feel it his duty to contribute his quota towards so desirable an end. The register, completed to the last day of May in each year, should then be forwarded to the nearest member of the Council, by whom it will be transmitted to the Secretaries. On a subject where the want of extensive and careful observation is felt and lamented, the Council feel warranted in asserting that they expect the most satisfactory result from the combined observations of the Medical Association, forming a phalanx of observers never before known in the annals of British medicine.

In compliance with the resolution passed last year respecting the formation of a Benevolent Fund, various local Committees have been formed, with whom the Central Committee have communicated: the latter have also proposed a form of rules and regulations, which has been generally approved of by the local Committees, and which will, at this meeting, be submitted to the consideration of the Association. The amount of subscriptions received, with other matters concerning the Benevolent Branch of the Association, will be stated in a short report that will be presented from the Central Committee. The importance of this subject, and of another which engaged the attention of the Association last year, viz. the operation of the New Poor Law Act as it affects the medical attendance on the sick poor, is such as to have induced the Council to provide rooms for the especial accommodation of the Committees appointed to manage these affairs, and members wishing to make any communications upon these matters are requested to give the Committees their assistance.

No contribution has been paid to the Prize Essay Fund during the past year, and the Council submit that at the ensuing anniversary, should no further addition have been received, it will be desirable to make some appropriation of the sums which have been already announced.

The Council, in terminating their report, cannot avoid expressing the high gratification which they experience in the contemplation of the present posture of the affairs of the Association, and of its rapid advancement to usefulness and distinction. Without venturing to prophesy the future destiny of this Association, should its members continue to progress in the active and bold career which they have commenced, it is enough to state that such an Association as that of which we now celebrate the fourth anniversary, is unexampled in the history of medical science, and that it has already raised the character of provincial practitioners, and united them in the firm bond of mutual co-operation for the advancement of medical knowledge.

ACCOUNT
OF THE
PRESENT STATE OF MEDICINE AND MEDICAL MEN IN DENMARK.

EVERY physician and surgeon in Denmark gets an education which qualifies him to maintain the dignity of his profession, as a worthy member of a class that is generally considered as one of the most respectable and most liberal. The Danish medical men are usually held in high esteem. We have seen how much the doctor of medicine deserves respect from his scientific acquirements; and Danish physicians and surgeons are so honoured abroad, that very often Swedes come to Copenhagen in order to be treated by them. Mountebanks and quacks amongst the Danish medical men are likewise rare. This is the more to be wondered at, since the number of both physicians and surgeons is increasing greatly every year, in every part of the Danish dominions. In Copenhagen alone, with a population of 110,000, the number amounts already to 183, and that the condition, as well of those endowed with public offices as of mere private practitioners, is none of the most brilliant, will be evident from the following facts.

The salary which the state gives to those in royal public medical or surgical offices is extremely small: to the surgical, 150, 200, 400 dollars (15*l*., 20*l*., 40*l*.); to the medical, 400, 600, 900 dollars (40*l*., 60*l*., 90*l*.), according to the time of service. In order to gain a livelihood for his wife and children, the officer must devote all the hours of the day to practice, which in the country is burthensome in the highest degree; the county in which his office is being often forty English miles in circumference, and every year younger colleagues are settling in his county, who take more and more of his practice from him. Still worse is the condition of the mere practitioner without any public office: he is not, as in England, paid for every visit to the patient, but gets his fee after his recovery; or, still more commonly, he attends families as "house-physician," paying visits every time a member of the family gets sick, and receiving his fee every new year's day. This

fee for the attendance of a whole year amounts usually to from twenty five to thirty dollars (3*l.*); and this even from families where there are many children, and where, upon the whole, perhaps only one month in the year has been without attendance. Only very few give fifty dollars (5*l.*); and he is a *rara avis*, and falling only to the lot of the older and very celebrated physicians, who pays the exceedingly large fee of 100 dollars (12*l.*) on new-year's day! For the care of a patient who is not attended by the medical men in quality of house physician, he must think himself well paid when he gets ten or fifteen dollars (1*l.* or 1*l.* 10*s.*), and this, perhaps, after an attendance of several months. Many, even of the higher classes, pay nothing at all, and on that account, like good politicians as they are, change their physician every year, or every time they become sick.

There is certainly a legal charge fixed for every visit the medical man makes, and for every receipt he writes; but such is the custom of the country, that a physician dare never ask his due, for by so doing he would be accused of sordid avarice, and be obliged to yield his patient to one or other of his many brethren, and at last lose entirely what practice he had. Only in the country the medical men who are not paid are accustomed to give in their bills, but many of their patients bitterly complain of such a mode of proceeding; and yet the charge for travelling fifteen English miles, and in this manner employed at least eight hours, is no more than a dollar (half a crown)! The Danish physician is really, to say truth, most fortunate, in this respect, when one of his patients, particularly a wealthy one, *dies!* for he is then always *requested* to give in his bill for his attendance; and he may then charge the heirs with a sufficient sum without risking objections, although this now and then happens, and he is, according to law, the first paid of all the creditors.

The miserable and unjust condition of the Danish medical men, in all these respects, need not be pointed out. It should not be left entirely to the arbitrement of patients to pay what they please: it should be a strict legal order for the medical man to deliver his bill according to a legal charge; it would not then, as now, be thought strange and self-interested to do so; the wealthier and more grateful patients might still, when so minded, give *more* than the legal demand; and, from so liberal a profession as the medical, the poor certainly would not have any thing to fear by such an arrangement; for who would charge them? If, according to the present system, medical men, poor themselves, are sometimes obliged to charge or receive a fee from them, would this not happen much more seldom when they received a better and sure remuneration from the more opulent? As it is, the young medical man cannot gain a livelihood by practising, and the elder ones must, by the *number* of patients, try to compensate for the smallness of the fees: and this is one of the reasons why the most celebrated and most able Danish practitioners, endowed with the most valuable experience, are unable to do any thing towards the advancement of the science.

In order to lessen the probable want that may arise to the family of a medical man who dies in poverty, there exist two *benevolent medical societies* for the relief and support of the widows and children of deceased medical men; one in Copenhagen, another in the provinces.

An amiable trait in the character of the medical profession in Denmark, is the harmony that exists between its members. It scarcely ever happens that one practitioner, from sordid motives, blames the conduct of the other at the sick bed: one never interferes with the practice of another; and, if one is called to a patient whom he supposes to be attended at the time by another, or who has his own house-physician, he never prescribes for the patient without previously having ascertained whether he is called according to the wish and the consent of his colleague, and without having consulted with him: if he is called contrary to the consent of his colleague, or without his knowledge, he refuses to prescribe at all. On the other hand, in dangerous or obstinate cases, it is very common for one physician to take another with him, in consultation; and there is not one single instance on record where such consultations have not ended in the most friendly manner.

The harmony and the scientific intercourse amongst the medical men in the Danish capital, are supported by two *medical societies*.

In their general methods of cure, the Danish medical men do not commonly use, but rather shun, heroic remedies: as true sons of Hippocrates, they follow his maxims in studying nature, and in endeavouring, in all their treatment, to obey it, and to sustain the *vires medicatrices*, not disturbing them by too active medicine. That, nevertheless, no extravagance in this respect is allowed to take place, is proved by a golden book, by the late celebrated practitioner, Dr. Ludvig Bang, entitled "Praxis Medica," written in Latin, and once a standard of medical practice in Denmark. Nor is Denmark a home for quackery, being by far much less filled with quacks than England, France, or Germany. The rights of authorized me-

dical men are strictly secured by laws which prohibit every species of quackery and unauthorized dispensation of medicine. In order to preserve the enforcement of these laws in all their vigour, all physicians and surgeons are bound to put their name and official function on every one of their written prescriptions; and an alphabetical list of all authorized medical men and their assistants is annually distributed among the apothecaries, chemists, and druggists, who are prohibited by a heavy fine from delivering medicine to any other but those who present a prescription signed by the name of a legalized medical man; and it is incumbent upon every assistant (amanuensis) of a practitioner, to take his examination within two or three years from the time of his appointment as assistant. All the provincial medical officers, and the state-physician in every town, must, according to law, report every year, to the highest medical authority in Denmark, whether any quackery has made its appearance during the year at their place of residence.

This "highest medical authority" in Denmark is the Royal Board of Health, which resides in Copenhagen, and was instituted in the year 1803. According to the royal decree, it now always must consist of ten medical members, five physicians, five surgeons, and two apothecaries. Every thing relating to medicine, surgery, and pharmacy, in Denmark, medical police, medical and surgical practice, the state of the apothecaries' shops, the behaviour of midwives, &c., are under the superintendence of this Board of Health. Reports of epidemic diseases, of the state of health at the respective places, of remarkable cases, of unhappy accidents, of the quality of medicines that are sold by the apothecaries, of unauthorised practitioners, &c., must annually be sent to this College of Health by the several county physicians, who again are bound to obtain like special reports from the county surgeons and the mere private practitioners in their counties. The College of Health decides also upon the doubtful mental state of criminals or the accused, and has likewise the privilege of making proposals to the king about the filling of vacant medical and surgical offices, on which account all applications for such vacant offices are first sent to it; and so great is the impartiality of the king, that he scarcely ever omits to ask the opinion of the College of Health, or acts contrary to it by listening to patrons or friends of the candidates for an office. It is but justice alone to state that the College acts with the greatest impartiality, weighs the respective merits of the many candidates in doubtful cases, leaving the final decision to the king. The only objection that might be made in this respect is that too much stress is laid upon the *age* of the candidates for such offices. The College of Health is also bound, in conjunction with the *Town* physician, to visit the shops of the apothecaries once a year (in the autumn), in order to examine the quality and goodness of all the medicines on sale; on which occasion also many chemical analyses are made.

The principal administration of the functions of the College of Health is undertaken by a Dean, who is annually changed, and by turns chosen among the medical and surgical members of the College. The College assembles once a fortnight (every other Saturday, at six o'clock,) in order to examine and decide the cases that have been laid before it; and these, in the interim, circulate among the members, all of whom, with the dean at the head, are bound to vote upon them.

It is remarkable that the members of this College, although really working hard in the fulfilling of their duties, and although having annually about six hundred different cases to decide upon, do not enjoy any pecuniary emolument or salary for their labours; the dean alone receiving the year he is in office, 400 dollars (40*l.*), and his secretary 200 dollars (20*l.*) It is also a defect in the organization of the College of Health that it cannot refer directly to the king, but that all its decisions and proposals go through the royal Chancery; an arrangement that necessarily must damp the activity and the influence of the College; the Chancery, although not possessing one single man acquainted with medical affairs, often deciding contrary to the opinion of the College *

C. O.

Copenhagen, March 17, 1836.

NEW METHOD OF OPERATING FOR PHYMOSIS.

Phymosis certainly requires very little of an operation; nevertheless it is desirable that those who have to submit to it should not incur in consequence a vexatious deformity, as sometimes happens. As it is still generally practised, the operation has the disadvantage of converting the prepuce into a pendulous flap, which is inconvenient, leaving the glans exposed at least on one side. M. Malapert proposes a method by which the organ retains its natural form. The cicatrization being completed, and the consecutive swelling subdued, no trace of the operation remains. To accomplish this, two incisions are made in the prepuce, and one in the frænum. These three cuts are made at equal distances from each other, and those in the prepuce must be proportioned in length

* Brit. and For. Medical Review, July 1836.

to the contraction of the orifice: they may require to be four, five, or six lines, but never more.

In a patient of M. Malapert the orifice of the prepuce was considerably narrowed, its diameter about a line and a half, being less in fact than that of the urethra. Having made him sit down before me (says M. Malapert) I traced with ink a point on each lateral region, and a little above the anterior zone of the prepuce, at five lines behind its free border. With a pincers I gently raised the part to be cut, and introduced the bistoury held flat, and bringing out the point of it at the spot marked with ink. I then made the incision by lowering the hand, and bringing it towards me. The same was done on the opposite side. It is necessary to take care that the mucous membrane be cut through as well as the skin. These two incisions enabled me to see the glans, and to cut the frænum to the extent of a line and a half. Some minutes after, when the flow of blood had ceased, I turned the prepuce backwards, and dressed it with dry charpie; a compress in the form of a Maltese cross, pierced in the centre, corresponding to the orifice of the urethra. The cure was complete in ten days. The patient came to see me about six weeks after, when it was very difficult to discover any trace of the operation. Since this first case I have often operated in a similar manner, and frequently with such success that if the patient were placed beside another man it would be difficult to say which of the two had been operated upon.—*Archives de Médecine.*

EXTIRPATION OF THE PAROTID GLAND.

Although this be one of the most dangerous operations in surgery, yet the improvements of modern times prevent us from admitting the timid maxim of Richter —never to undertake it. Louisa Kaul, ætat. 29, of feeble constitution, but who never had had any serious disease, had been affected from her infancy with a small tumor of indolent character behind the left ear. After a time this was observed to increase, when she consulted a surgeon, who ordered friction to be employed with some ointment. Nevertheless the tumor increased in size, became painful, and the skin over it purplish. At length the pains became distressing, and extended to the surrounding parts, depriving the patient of all rest.

When the author (M. Eulenberg) first saw her, the tumor in size and shape resembled a hen's egg, and occupied the left side of the face and neck; it extended forward beyond the ordinary ramus of the lower jaw, and backwards as far as the mastoid apophysis. The tumor itself was immobile, hard as cartilage, and lobulated. The skin over it was now red, with a bluish tint, and firmly adherent to the parts beneath. The general health of the patient had now for some time been much affected; her complexion pale, appetite bad, and strength much impaired. The case was evidently one of schirrous parotid gland, about to pass into carcinoma, and nothing remained which could save the patient except an operation. This was practised in the following manner:—An oval incision was made, beginning at the external orifice of the ear, and carried to the lower part of the tumor anteriorly. A second analogous incision included the posterior portion of the swelling. The fibres of the muscle were divided in the same direction, and the tumor separated very carefully from before backwards, and then from behind forwards. A small portion of the gland which remained was separated from the carotid artery with a forceps. The operation lasted twelve minutes, and the vessels which were divided during this time, being compressed by attendants, did not bleed. The application of cold water arrested the hæmorrhage. The wound healed by the first intention, and the sore of the face, which was at first paralysed, is now regaining its natural power. The patient is in other respects well.—*Rust's Mag.*

HEMIPLEGIA CURED BY LIGHTNING.

A peasant, aged 46, the mother of a large family, became affected with paralysis of the right side, soon after one of her accouchements, on the 8th of July, 1834. Various remedies were employed without avail. On the 16th of the July following, the house in which she lived was struck by lightning, which entered her apartment. Dr. Panea was sent for, who found her in a state of great agitation, being affected with general tremor. He bled her. Next day, on visiting her, he found that the paralysis was gone, and she continued afterwards quite well.

Il Filiatre Sebezio.

CONSUMPTION OF OPIUM IN CHINA.

"It is a curious circumstance," says the *Quarterly Review*, "that we grow the poppy in our Indian territories to poison the people of China, in return for a wholesome beverage which they prepare, almost ex-

clusively, for us." From the following statement, made by Mr. Davis, late chief superintendant at Canton, it appears, that the money laid out by the Chinese on their favourite drug far exceeds what they receive for their tea.

Imports in 1833.

	Dollars.
Opium	11,618,167
Other imports	11,858,077
	23,476,244

Exports in 1833.

	Dollars.
Tea	9,133,749
Other exports	11,309,521
	20,443,270

The Chinese smuggle all this opium, and pay the difference between the price of it, and that of the tea they export, in silver.

REPORT OF THE MARYLEBONE INFIRMARY.

NOTE FROM DR. CLENDINNING.

To the Editor of the Medical Gazette.

Sir,

You will oblige me by giving insertion to the following notice of errata in my report printed in the Gazette of Saturday last.

The date of the parliamentary paper from which I quoted Mr. Rickman's table of annual mortality for each quinquennial period of life, at page 644 of the Gazette is 1834, and not 1836. See tables of revenue, population, commerce, &c. by G. R. Porter, Esq. Secretary to the Board of Trade, 1836. P. 453.

The total of cases of pneumonia mentioned by M. Bouillaud (Gaz. Méd. de Paris, No. 49, 1835) is 102, not 202, as printed in Med. Gaz. p. 647. His statement is that of 102 unequivocal cases of pulmonic inflammation during four preceding years he had had, owing, he conceives, exclusively to his system of blood-letting *coup sur coup*, but 12 deaths, or ($\frac{102}{12}$ =) 1 in 8,50, or rather 8,75.

In the paragraph on measles, p. 646, I may add there are two errors of minor importance, clerical or typographical. *In* follows *irruption*, instead of *into*; and *irruption* in a subsequent line appears for *eruption*.

I have the honour to be, sir,
Your very obedient servant,
John Clendinning.

Wimpole Street,
25th July, 1836.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *July* 26, 1836.

Abscess	1	Fever, Typhus	2
Age and Debility	28	Heart, diseased	2
Apoplexy	6	Inflammation	22
Asthma	4	Bowels & Stomach	3
Cancer	2	Brain	4
Childbirth	1	Lungs and Pleura	1
Consumption	51	Insanity	6
Constipation of the Bowels	1	Liver, diseased	2
Convulsions	35	Measles	5
Croup	4	Mortification	4
Dentition or Teething	4	Paralysis	3
Dropsy	14	Small-pox	9
Dropsy on the Brain	5	Sore Throat and Quinsey	1
Erysipelas	2	Spasms	1
Fever	8	Thrush	1
Fever, Scarlet	2	Casualties	8

Decrease of Burials, as compared with the preceding week . . . 3

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

July, 1836.	Thermometer.		Barometer.	
Thursday . 14	from 52	to 69	29·89	to 29·91
Friday . . 15	48	63	29·84	29·61
Saturday . 16	43	63	29·64	29·79
Sunday . . 17	53	70	29·79	29·98
Monday . . 18	49	69	30·02	30·04
Tuesday . . 19	44	65	29·84	29·73
Wednesday 20	49	54	29·58	29·49

Prevailing winds, W. by S. and W.

Generally cloudy, with frequent rain. Lightning in the north on the evening of the 15th.

Rain fallen, .975 of an inch.

July.				
Thursday . 21	from 41	to 60	29·56	to 29·66
Friday. . . 22	46	65	29·68	29·79
Saturday . 23	49	63	29·94	29·98
Sunday . . 24	47	65	29·81	29·66
Monday . . 25	50	65	29·68	29·86
Tuesday . 26	53	70	29·99	30·01
Wednesday 27	57	73	30·05	30·03

Prevailing winds, W. by S. and S. by W. Except the morning of the 21st, generally cloudy, with frequent rain: a storm of thunder and lightning, accompanied with heavy rain and some hail, from 3 till 4 on the afternoon of the 21st; lightning in the west the same evening.

Rain fallen, .675 of an inch.

Charles Henry Adams.

NOTICES.

The paper "On the Power of the Mind over Health" is destitute of practical interest, and cannot be inserted.

T. W.—We regret we must decline this paper also: the drawings are in our opinion neither useful nor ornamental.

Dr. H. S.—The cases of Iodine treatment contain nothing to entitle them to a place in our pages.

Errata. — In Mr. Sweeting's paper, page 560, col. 1, line 57, omit "of," after "fibres;" col. 2, line 1, omit the colon after "varolii," and put it after "magnum," line 4.

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THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, AUGUST 6, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XLV.

The family *Rubiaceæ* of Jussieu, Decandolle, and others, has, by Mr. Lindley, been divided into two families, termed *Stellatæ* or *Stellaceæ*, and *Cinchonaceæ*. Stellatæ are distinguished from Cinchonaceæ by their angular stems and whorled leaves, destitute of stipules. Moreover they are natives of the colder, while Cinchonaceæ belong to the hotter parts of the world.

Cinchonaceæ.

Characters.—The plants of this family are trees, shrubs, or herbs: their leaves are simple, entire, and opposite, with interpetiolary stipules. The inflorescence varies, but is usually a panicle, or corymb. The calyx is monosepalous, superior, and either entire or divided. The corolla is monopetalous, superior, tubular, and divided; its modifications of æstivation being various. The stamina are usually five in number, and arise from the corolla, with the segments of which they alternate. The ovarium adheres to the calyx, has two or more cells, and is of the kind called inferior: it supports a single style, with a simple or divided stigma. The fruit is inferior; the seeds are albuminous.

Cinchona.

Characters.—This genus is characterized as follows:—The corolla is superior, five-toothed, and peristent. The corolla is infundibuliform, or salver-shaped, with a five-parted spreading limb, and valvate æstivation; the stamina are five in number, and are inclosed in the tube of the corolla; the ovarium is inferior; the stigma bifid. The fruit is a many-seeded capsule, with a septicidal dehiscence. The seeds are flat, or peltate, with a membranous laciniate margin.

According to Decandolle, no less than eight genera (including forty-six species) have been confounded under the name of Cinchona: they are, Cinchona properly so called, Buena (called by some botanists Cosmibuena), Remijia, Exostema, Pinkneya, Hymenodyction, Luculia, and Danaïs. The same authority also states that the first of these genera (Cinchona properly so called) is distinguished from the others by the following characters:—1st, The stamina are entirely concealed within the tube of the corolla, and never project beyond it. 2dly, The fruit consists of two cocci, or carpella, which adhere to the calyx; it has a septicidal dehiscence from below upwards. 3dly, The seeds are erect, and imbricated on each other, from below upwards. 4thly, The limb of the calyx is toothed only to a third or half of its length, and is persistent at the summit of the capsule. Mr. David Don has also pointed out another character by which some of the genera may be distinguished—namely, the form of æstivation. Thus, in the genera Cinchona and Pinkneya, the æstivation is valvate. In Buena, Lasionema (a genus formed by Mr. Don, to include the plant formerly termed Cinchona rosea), and Luculia, it is imbricated; in Exostema it is induplicate; and in Hymenodyction it is plaited.

Species of Cinchona.—In botanical writings great discrepancy exists as to the real number of species of this genus. Thus Humboldt makes eighteen; Poiret twenty-four; Sprengel fifteen; Lambert seventeen; and Decandolle sixteen. This has arisen partly from the confusion

of genera, and partly from the difficulty of determining what are real species and what only varieties. Thus the shape of the leaves, which has been used by some botanists for the distinction of species, cannot be relied on; and "whoever," says Humboldt, "determines single specimens of dried collections, and has had no opportunity to examine or observe them in their native forests, will, as is the case with the Bronzonetta papyrifera, be led to discover different species by leaves which are of one and the same branch." Moreover, great uncertainty exists as to the species yielding the Cinchona barks, as I shall show when speaking of the barks individually. These reasons induce me to omit any notice of individual species.

Geography.—It is a most remarkable circumstance, that hitherto no Cinchonas have been found except in Peru and Colombia. Some writers, indeed, have described plants which they have termed Cinchonas, growing in other parts of the world, but subsequent examination has shown them to belong to other genera. Thus three species of Remijia, growing in the Brazils, have been described and figured by M. Aug. de Saint Hilaire, as species of Cinchona. The Cinchona excelsa of Roxburgh, a tree growing on the coast of Coromandel, is now placed in the genus Hymenodyction. The Cinchona Caroliniana of Poiret, is, in fact, a species of Pinkneya.

The true Cinchonas extend from 20° south, to 11° north, latitude, on the Andes, at varying elevations. It is difficult to assign limits to these elevations, since the statements of Humboldt on this subject are not uniform. Thus the lowest true Cinchonas are variously stated, by himself and Kunth, to grow at an elevation of from 200 toises (1200 feet) to 359 toises (2154 feet); while the highest are said to grow from 1487 toises (8922 feet) to 1680 toises (10,080 feet). The temperature of the Cinchona districts necessarily varies with their altitude; perhaps the average is about 68° F.

Method of obtaining Cinchona barks.—"The Indians," says Mr. Stevenson, "discover from the eminences where a cluster of the trees grow in the woods, for they are easily discernible by the rose coloured tinge of their leaves, which appear at a distance like bunches of flowers amid the deep-green foliage of other trees. They then hunt for the spot, and, having found it out, cut down all the trees, and take the bark from the branches:" and he adds, "after the Indians have stripped off the bark, they carry it in bundles out of the wood, for the purpose of drying it."

This account of the method of procuring these barks is somewhat different from that published many years ago by Mr. Gray, from the papers of the late Mr. Arrot. The latter tells us that the bark is cut from the trees as they stand. Every two Indians take one tree, from which they cut or slice down the bark with a large knife "as far as they can reach from the ground; they then take sticks about half a yard long each, which they tie to the tree with tough withs at proper distances, like the steps of a ladder, always slicing off the bark as far as they can reach, before they fix a new step, and thus mount to the top, the Indian below gathering what the other cuts." It is afterwards carried in bags to the low country, where it is spread out and carefully dried.

The proper period for cutting the bark is the dry season. Arrot says this is from September to November. Ruiz, however, states that violent rain continues from October to May, when the fine weather commences, and continues to September.

In order to know whether the stems and branches are sufficiently mature for barking, Ruiz says one or two stripes are cut off with a knife, and exposed to the air. If within three or four minutes the inner side of these stripes, as well as the part of the branch deprived of bark, begins to turn red, it is an infallible sign of maturity, and *vice versâ*.

When we take into consideration the immense consumption of Cinchona bark, (Pelletier alone in one year consumed 2000 quintals, equal to 200,000 lbs. of yellow or Calisaya bark, in the manufacture of the sulphate of quinia); that the trees yielding it are confined to one part of the world; and that no care is taken of their preservation; it is not at all improbable that in a few years this valuable drug may totally disappear from commerce. Indeed, a report has been prevalent among the drug dealers, that the *Cascarilloes*, or bark collectors, had arrived at the limits of the forests containing the yellow or Calisaya bark, but whether this be true or false, I know not. I am acquainted with one dealer who has laid in a large stock, on the speculation of the truth of this report.

"If," says Mr. Stevenson, in his Travels in South America, "the government of America do not attend to the preservation of the quina, either by prohibiting the felling of the trees, or obliging the territorial magistrates to enforce cutters to guard them from destruction, before a sufficient population will allow of those tracts of woodland becoming personal property, this highly esteemed production of the new world will be swept from the country." What Condamine asserts is highly probable, that both old and young trees die from the scaling of

the bark, whether they are cut down or not; but Bollus and Arrot assert the reverse: the former states that Cinchona trees may be frequently seen deprived of their bark without suffering any detriment; and the latter tells us that from 18 to 20 years are required for a Cinchona tree to produce a new bark. When the trees are cut down, Mr. Stevenson tells us that the roots generally sprout, but "no trees of any large size grow up, for they are either smothered by the lofty trees which surround them, or else they are choaked by other young trees which spring up near to them, and are of quicker growth."

Physical properties of the Cinchona barks.—Under this head I propose to examine the *structure*, the *quilling*, the *colour*, *taste*, and *odour*, the *fracture*, and the *cryptogamic plants* found on the Cinchona barks of commerce.

Structure.—Those barks known to druggists by the name of *coated* barks consist of the following parts—an epidermis, the rete mucosum, and cortical layers, (the innermost of which is termed the liber).

(*a.*) *Epidermis.*—This is the most external portion of the bark, and is variable in its thickness. The barks of commerce are said to be *coated* (*Cinchona cum cortice exteriore* of Bergen) when the epidermis is present, but when this is absent, and when also part or the whole of the next layer (rete mucosum) has been removed, such barks are called *uncoated* (*Cinchona nuda* of Bergen). As the epidermis is useless, or nearly so, in a medicinal point of view, uncoated barks are to be preferred, since the epidermis increases the weight of the bark, without adding any thing to its real value. In reference to this layer, there are several characters deserving of attention in judging of the quality of bark: thus Cinchona barks, with a whitish epidermis, are, I believe, for the most part, inferior to those in which this layer is brown. But you must not mistake a whitish coating given to a brown epidermis by some crustaceous lichens, for a genuine white epidermis. The term *warty* or *knotty* (*Cinchona nodosa* of Bergen) is applied to those barks in which we observe prominences on the epidermis, corresponding to elevations on the subjacent parts. These are frequently observed in some specimens of red bark, as well as in the kind called Huamalies. Bark is termed *cracky* or *furrowed* (*Cinchona rimosa* of Bergen) when we observe cracks or furrows (the latter may be regarded merely as larger kinds of cracks) on it. When we observe longitudinal or transverse elevations, we say the bark is *wrinkled*, (*Cinchona rugosa*).

(*b.*) *Rete mucosum—cellular envelope—medulla externa.*—This is a cellular layer, placed immediately beneath the epidermis. It is tasteless, and is of no medicinal value. In old barks, (particularly old red bark) it is often much developed: in uncoated bark it is sometimes, though not always, absent.

(*c.*) *Cortical layers*, or *cortex.*—These are beneath the rete mucosum, and, in fact, form the essential part of the bark. One layer is formed annually, and hence their number, and consequently the thickness of the bark, depends on the age of the tree from whence it is taken. The last formed layer, that which is the innermost, is termed *liber*. Every one of the cortical layers has medicinal virtue, but the liber the most. The reason for this will be readily comprehended by reference to the physiology of exogenous plants. The *succus communis* of these plants ascends by the alburnum, or sap wood, to the leaves, where it undergoes certain changes by the agency of the atmosphere, in consequence of which it is converted into what is called *succus proprius*, the proper juice of the plant, and in which any medicinal activity which the latter possesses usually resides. Now this succus proprius descends in the liber: hence this part may always be expected to possess the proper medicinal activity of the tree from whence it is taken.

Cryptogamic plants. — The epidermis of Cinchona barks is frequently covered, either wholly or partially, by cryptogamic plants. These belong to four orders or families,—namely, Musci, Lichenes, Hepaticæ, and Fungi.

1. *Musci*, or *Mosses.*—We frequently find mosses on Cinchona barks; but as they are never met with in fructification, it is almost impossible to determine the genus to which they belong. They are probably species of Hypnum.

2. *Lichenes.*—These are found in great abundance, especially on the species called *Loxa* or *Crown bark* (the finest kind of pale bark). We may conveniently arrange them according to Zenker, in four sections:

Sect. 1. *Coniolichenes*, or the pulverent lichenes (*Lichenes pulveracei*).—In this section we have the *Hypochnus rubrocinctus* (classed among the Fungi by Fée). I have frequently found it on the finest specimens of quilled yellow bark.

Sect. 2. *Cryolichenes*, or the crustaceous lichenes (*Lichenes crustacei*). — These frequently put on very beautiful forms, and so colour the surface of the epidermis, that they appear to constitute a part of this coat. In that kind of pale bark usually called *grey*, or *silver*, the surface of the epidermis has a whitish cretaceous appearance, from the presence of various species of Arthonia and Pyrenula.

Sect. 3. *Phyllolichenes*, or the foliaceous lichens (*Lichenes foliacei*).—These are found

most abundantly on the *Crown* or *Loxa* bark. The most common species belong to the genera Parmelia, Sticta, and Collema. The P. coronata is a beautiful species, and one frequently met with. So also the Sticta aurata, remarkable for its yellow colour.

Sect. 4. *Dendrolichenes,* or the filamentous lichenes (*Lichenes fruticosi*). — The Usneas are good examples of this section: they are found in abundance on the Crown bark. Two species are met with—U. Florida, and U. barbata; a variety of the latter is curiously articulated.

3. *Hepaticæ.*—Jungermannias are found on Cinchona barks, but in too broken a condition to determine their species. Feé, however, examined Humboldt's Herbarium, and found four.

4. *Fungi.*—As Fungi usually grow on weakly or dead trees, their presence on Cinchona bark is a bad characteristic. Very few, however, are met with.

Quilling of the bark. — Bark, little or not at all curled, is called in commerce *flat bark* (*Cinchona plana*). The absence of the curl arises from one of two circumstances,—the age of the stem from which the bark is taken, or the want of flexibility of the bark even in the fresh state. When bark is rolled cylindrically in a quilled form, it is termed *quilled bark* (*Cinchona tubulata*). Bergen speaks of several kinds of quilling—namely, the *partially quilled* (*Cinchona subconvoluta*), when the two edges of the quill approximate,—the *closely quilled* (*Cinchona convoluta*), when the edges of the quill overlap each other, forming a more or less closely rolled up tube,—and the *doubly quilled* (*Cinchona involuta*), when both edges of the quill are rolled together, so as to form two cylinders, but which, seen from the back, appear as one.

Fracture. — The transverse fracture of bark furnishes an important character. Bergen admits three kinds of it: 1st, *smooth, even,* or *short fracture* (*fractura plana*); 2dly, *resinous fracture* (*fractura resinosa*); and, 3dly, *fibrous fracture* (*fractura fibrosa*). Bark with a resinous fracture is usually to be preferred.

Colour, taste, and smell.—Little need be said of these characters. The same kind of bark often varies in its colour, while several kinds may have the same tint. Moisture usually deepens the colour.

Classification and varieties of Cinchona barks.—A *botanical* classification of the Cinchona barks I hold to be at present impracticable; and moreover, if it were practicable, it would be, in a commercial and pharmaceutical point of view, useless, since the barks are never accompanied by the other parts of the tree from which the botanical characters are drawn.

A *chemical* classification I also think cannot be at present attempted with any great chance of success. Goebel has offered the following:—

	Quantity of Alkalies in a pound of Bark.	
	Cinchonia.	Quinia.
I. *Cinchona barks containing cinchonia:*		
(*a*). Huanuco, or grey bark	168 grs.	..
II. *Cinchona barks containing quinia:*		
1. Yellow, or regia bark.		
(*a*). Flat uncoated pieces	..	95 grs.
(*b*.) Coated thick quills	..	84
(*c*.) Thin quills	..	60
2. Fibrous Carthagena bark (China flava fibrosa)	..	54
3. Ash bark (*China Jaen*)	..	12
III. *Cinchona barks containing both quinia and cinchonia:*		
1. Red bark	65	10
2. Hard Carthagena bark (China flava dura)	43	56
3. Brown, or Huamalies bark	38	28
4. True Loxa or Crown bark	20	16
5. False Loxa bark	12	9
IV. *Cinchona barks containing neither quinia nor cinchonia:*		
False cinchona barks	0	0

This table must not be relied on, since its results do not accord with the experiments of others. We may, I think, presume that all the barks of the three first divisions contain both quinia and cinchonia, but in varying proportions. That

the *yellow* or *regia bark* contains cinchonia, every manufacturer of sulphate of quinia knows.

The following is Geiger's arrangement:—

Div. 1.—*Cinchonia barks, in which the Cinchonia predominates:* this includes the Huanuco, Huamalies, Ash, Loxa, and false Loxa barks.

Div. 2.—*Cinchona barks in which the Quinia prevails:* this includes the regia or yellow bark only.

Div. 3.—*Cinchona barks in which Quinia and Cinchonia are contained in nearly the same stochiometrical proportions:* here are placed the red and Carthagena barks.

An arrangement founded on the *physical* characters of the barks will be for the present, perhaps, the most useful, and is the one generally followed. In the "*Versuch einer Monographie der China*," of H. Von Bergen (a work which the late Dr. Duncan, junior, very justly described as "the most perfect specimen of pharmacography" ever published, and from which I shall draw very largely in my descriptions of the barks), nine varieties of Cinchona bark are described, namely—

1. China rubra, or red bark.
2. China Loxa, or crown bark.
3. China Huanuco, or grey bark.
4. China regia, or yellow bark of English commerce.
5. China flava dura, or hard Carthagena bark.
6. China flava fibrosa, or woody Carthagena bark.
7. China Huamalies, or rusty bark.
8. China Jaen, or ash bark.
9. China pseudo-Loxa, or bastard crown bark.

I am indebted to the kindness of Von Bergen for illustrative examples of these and other varieties of Cinchona, by which I have been able to identify the species with those known in English commerce.

M. Guibourt, in the third edition of his "*Histoire abrégée des Drogues simples*," has described no less than thirty-seven varieties of Cinchona barks, which he has arranged under five heads:—

1. Grey [or pale] barks.
2. Yellow barks.
3. Red barks.
4. White barks.
5. False Cinchona barks.

By an interchange of specimens, M. Guibourt and myself have been able to determine the synonymes of the barks known in French and English commerce. Lectures, however, are not adapted for entering into an account of all the known varieties, and, therefore, I shall confine myself principally to those commonly used in medicine in this country, only introducing an account of others when they serve to illustrate the history of the more important ones. I shall adopt the following arrangement:—

Div. I.—Genuine Cinchona barks

Section 1.—Having a brown epidermis.
- (*a.*) Pale barks.
- (*b.*) Yellow barks.
- (*c.*) Red barks.
- (*d.*) Brown barks.

Section 2.—Having a whitish epidermis (white Cinchonas of some authors.)
- (*a.*) Pale.
- (*b.*) Yellow.
- (*c.*) Red.

Div. II.—False Cinchona barks.

Div. I.—*True Cinchona Barks.*

By the terms *true* or *genuine Cinchona bark* (*Cinchona vera*), I mean the bark of some species of the genus Cinchona. Hitherto all these barks have been found to contain one or more of the vegetable alkalies, quinia, cinchonia, or aricina: we presume, therefore, one or more of these to be essential, and perhaps we might also add peculiar, to the genus.

The true Cinchonas are subdivided from the character of their epidermis. In some Cinchona barks (the Carthagena, for example), the epidermis is naturally white, has a micaceous appearance, is smooth, not cracked, and adheres to the subjacent laminæ: these are the *white Cinchonas* of some continental writers (Guibourt, for example). In other instances the epidermis is naturally more or less brown, cracked, and rugous. Frequently, however, it has a whitish appearance externally, owing to the adherent crustaceous lichens.

Section 1.—*True Cinchona Barks, having naturally a brown epidermis.*

To this section belong the pale, yellow, and red barks of commerce. The following are the characters of each of these subsections:—

(*a.*) *Pale barks* (*Cinchona pallida*).—These always occur in quills, never in flat pieces. Their powder is more or less pale, greyish, fawn colour, and their taste astringent and bitter. They contain probably both alkalies, cinchonia and quinia, but the first predominates. An infusion of this bark does not affect very obviously a solution of the sulphate of soda, in consequence of containing a very small quantity only of lime in solution. In English commerce three kinds of pale barks are known, namely—

1. Crown, or Loxa bark.
2. Silver, grey, or Huanuco bark.
3. Ash bark.

(*b.*) *Yellow barks* (*Cinchona flava*).—I use the term yellow bark in the sense in which it is employed in English and French commerce: by the Germans and Spaniards, however, the designation of yellow (flava) is given to certain barks which have a white epidermis (namely, the Carthagena barks of English commerce), and which, therefore, will be noticed presently. The yellow barks of English commerce occur in quills or flat pieces, the quills being, on the average, larger and much rougher than the largest quills of pale barks. The texture of yellow barks is much more fibrous than the pale: the taste is more bitter, and less astringent; the powder is orange or fawn yellow. The principal kind of yellow bark, namely, the regia or Calisaya, contains both quinia and cinchonia, but the first in by far the largest quantity. An infusion of this kind of bark precipitates a solution of the sulphate of soda, in consequence of the large quantity of lime in solution. The only yellow bark which I shall notice, is—

4. The yellow bark of English commerce, called also Calisaya or regia.

(*c*) *Red barks* (*Cinchona rubra*).—Red bark is met with in both quills and flat pieces: it has a fibrous texture, and a redder colour than either of the foregoing kinds: it contains a considerable quantity both of quinia and cinchonia. Only one species here deserves notice, namely—

5. The red bark of commerce.

(*d.*) *Brown bark* (*Cinchona fusca*).—This includes only one species—namely,

6. Huamalies, or brown bark.

(*a.*) *Pale Barks* (*Cinchona pallida*).

1. *Crown or Loxa Bark.*

History and synonymes.— A bark called *Loxa bark* has been long known in Europe, and was perhaps one of the first introduced into this quarter of the world. In all probability it was the bark which Horbius, in 1693, denominated *Cascarilla della Oja*, but which Condamine more correctly terms *Corteza*, or *Cascara de Loxa*. It is admitted, I believe, by all botanists, that this bark was procured from the *Cinchona Condaminea;* but some doubt exists in the minds of pharmacologists whether this is the bark now known in commerce by the name of Loxa bark. Hayne has pointed out some differences between the Loxa bark of commerce and a bark found in Humboldt's collection, marked *Quina de Loxa*, and which had been collected from the C. Condaminea: the peculiar characteristics of the latter are the warty prominences, the transverse cracks, which do not form rings, the browner tint of the outer surface, and a more astringent taste. A representation of this kind of bark is given in Goebel and Kunze's "*Pharmaceutische Waarenkunde;*" and the first of these authors tells us, that in a chest of 120 pounds of commercial Loxa bark, he could only find three ounces corresponding to this true Loxa bark. Bergen does not admit the opinion of its being a distinct kind.

Loxa bark received the name of *Crown bark* (*Cinchona corona* seu *coronalis*) in consequence of its use by the royal family of Spain. The following anecdote will serve to illustrate this point:—In October, 1804, a Spanish galley, returning from Peru, was taken by our countrymen off Cadiz. Among the treasures found therein were many parcels of Cinchona bark, two sorts of which were distinguished from the others by their external appearance and mode of packing. Two of these chests were marked "*Para la real familie*" (for the royal family), and were lined with sheet iron: they contained fine quills, of thirteen inches long, tied up by means of *bass* into bundles of about three inches in diameter. Von Bergen states he received from England, in 1824, similar bundles, under the name of *second Crown*. The other sort was marked "*Para la real corte*," (for the royal court.)

Commerce.—Crown or Loxa bark is imported in serons (holding from sixty to ninety pounds), and in chests (containing about one hundred pounds.) In these packages we sometimes meet with bundles tied round with bass. A bundle which I have is fourteen inches long, and six inches in diameter.

Varieties.— Druggists make several varieties of Crown bark, but none of them of much importance: they are founded partly on the thickness and size of the quills, and the nature of the epidermis,—partly on the crustaceous lichens. Thus the finest and thinnest quills, with a short fracture, constitute what is called *Cort. Cinchonæ coronæ superf. elect.* A somewhat larger quill, with a silvery appearance of the epidermis, derived from the adherent crustaceous lichens, constitutes the *Silver Crown bark.* A similar kind of bark, but in which the external coat has a speckled appearance, is called *Leopard Crown bark.* Lastly, a rusty coloured variety, remarkably free from lichens, and which I believe to be the young Huamalies bark, is sold as *Rusty Crown bark.*

Characters.—Loxa or Crown bark is only met with in the form of coated quills; neither flat nor uncoated pieces being ever met with. These quills vary in length from six to fifteen inches; in diameter from two lines to an inch; in thickness from one-third of a line to two lines: they are both singly and doubly quilled. The outer surface or epidermis of this bark is

characterised by numerous transverse cracks, which in the fine and middling quills are often distant from each other only from one to one and a half lines, and frequently extend completely around the bark in the form of rings, the edges of which, as well as of the shorter cracks, are a little elevated. In some of the fine quills, however, these transverse cracks are hardly visible; but we then observe longitudinal furrows. On the larger quills the transverse cracks are interrupted, and do not form rings, and are not set so closely together. Some of the thicker quills have occasionally almost the roughness of a grater; and occasionally pieces are met with having knots or warts. The colour of the external surface of Crown bark depends principally on that of the crustaceous lichens. Grey, or greyish brown, may be taken as the predominating tint: the thin quills are mostly slate, ash, or roe grey. The larger quills vary still more, and, in addition to the colours now mentioned, they are sometimes blackish grey,—even passing, in places, into liver brown. The inner surface of Loxa bark is smooth, with small irregular longitudinal fibres observed thereon: its general colour is cinnamon brown. The transverse fracture of small quills is even, but of the larger and coarser ones, fibrous. The powder of Loxa bark is of a deep cinnamon brown colour. The odour of this bark is like that of tan; its taste astringent, bitter, and somewhat aromatic.

Botanical history.—*Cascarilla fina de Uritusinga*, or genuine Loxa bark, is admitted by most writers to be obtained from the Cinchona Condaminea. It has, however, been supposed that this tree, which is said to be comparatively scarce, could not yield all the Loxa bark of commerce; and hence the latter has been referred to some other species, and the C. scrobiculata has been usually fixed on, in consequence of a remark made by Humboldt, that the young barks of these two species are hardly distinguishable in commerce. Various arguments, however, are advanced by Bergen against this notion, and he declares himself in favour of the C. Condaminea, as the mother plant of Loxa bark. One fact he adduces deserves especial attention: the lower part of the branch of the C. Condaminea, represented in the tenth plate of the first volume of the "*Plantes Equinoxiales*," actually presents the same numerous transverse annular cracks already described as belonging to the Loxa bark of commerce.

Chemical properties.—We have two analyses of this kind of bark: one by Pelletier and Caventou, the other by Bucholz. In sixteen ounces of commercial Loxa bark, the last-mentioned writer found the following soluble constituents:—

	Drs.	Grs.
Fatty matter, with chlorophylle ..	1	0
Bitter soft resin	2	0
Hard resin (red insoluble colouring matter)	12	0
Tannin, with some minims of acetic acid	3	0
Cinchonia	0	28
Kinic acid	1	30
Hard resin, with phyteumacolla..	1	47
Tannin, with chloride of calcium	4	25
Gum	5	40
Kinate of lime	1	40
Amylum, a small quantity.		

But, though quinia is not here mentioned, there is no doubt but that it exists in this kind of bark, though in small quantity. Von Santen gives the following quantities of sulphate of quinia obtained from 100 lbs. of Loxa bark:—

	Ounces.
Thin selected quills	1·042
Moderately thick pieces......	4·144
Selected thick heavy pieces, with grater-like bark......	11·101

2. *Silver or Grey Cinchona.*

History and synonymes.—This bark was first carried to Santander, in Spain, in the year 1799, by the frigate La Veloz. It is known in this country by the name of *Silver* or *grey Cinchona;* in France by that of *Lima bark;* in Germany by that of *Huanuco*, *Yuanuco*, or *Guanuco bark*.

Commerce.—It is imported usually in chests containing about 150 pounds, and also, though less frequently, in serons of from 80 to 100 pounds.

Characters.—It always occurs in the form of quills, no flat pieces being known. These quills are larger and coarser than those of Crown bark: the largest even approximate to those of Yellow bark, from which they are distinguished by the greater smoothness of their external surface. The length of the quills is from three to fifteen inches; their diameter from two lines to one and a quarter, or even two inches; their thickness one-third of a line to five lines. We observe on the epidermis transverse cracks, but they do not form rings, as in the Loxa or Crown bark. On the thicker quills longitudinal furrows are observed; and in these cases the transverse cracks are frequently wanting. The colour of the epidermis is whitish: in the smaller quills it is a uniform whitish grey, while in the large quills we observe a kind of cretaceous covering. This whitish appearance, from which, indeed, the terms silver and grey given to this

bark are derived, depends on some crustaceous lichens, as I have already observed. The structure of the inner surface of this kind of bark is, in the small quills, smooth; in the larger ones, fibrous: the colour is rather reddish, or rusty brown, than cinnamon brown. The fracture is even, and resinous; the odour clayish or sweet, and which Bergen says is peculiar to this kind. The taste is astringent, aromatic, and bitter; the powder of a deep cinnamon brown.

Botanical history.—The tree yielding this bark is unknown.

Chemical History.—I am not acquainted with any analyses of this bark, though several chemists have examined it with the view of determining the nature and proportion of its active principles. The following are their results:—

Quantity in a pound of Bark.

		Cinchonia.	Quinia.
Von Santen		from $106\frac{2}{3}$ to 210 grains.	....
Michaelis.	finest quality	50	32 grains.
	another sample	74	28
Goebel and Kirst		168	....

Ash Cinchona Bark.

History and synonymes.—It is uncertain at what period this bark was introduced into commerce, but it was probably among the earliest varieties introduced. Bergen states he found it in an old collection of drugs made in 1770. It has long been known in English and German commerce, but was unknown to the French until I sent samples to Professor Guibourt, who, in the last edition of his "*Histoire Abrégée des Drogues,*" speaks of it as a variety of Loxa bark: in this I think he is in error, for it does not appear to me to possess the characteristic marks of Loxa bark.

In Germany it is called *Jaen Cinchona*, after a province in South America of that name. The term Jaen has become corrupted into *Ten*, by which name this bark is designated; or to distinguish it from the pseudo-Loxa bark, also called by this name, it is termed *pale ten cinchona.*

Commerce.—It is imported usually in chests of from 110 to 140 lbs.; but we meet with it also in serons of from 70 to 100 lbs.

Characters.—This bark is met with in a quilled form only: the quills being of middling size, or somewhat thick; being from 4 to 16 inches long, from $3\frac{1}{2}$ lines to 1 inch diameter, and from $\frac{1}{2}$ to 2 lines thick. A very remarkable character connected with this bark is the crookedness of the quills, which are more or less arched and twisted; from which circumstance we may infer the probability of its being obtained from a tree which grows in a damp situation. On the outer or epidermoid surface we observe a few transverse cracks, and some faint longitudinal cracks; but in these respects there is a manifest difference between this and Loxa bark. The colour of the outer surface varies between ash grey, whitish grey, and pale yellow, with blackish or brownish spots. The inner surface is either even or splintery, and of a cinnamon brown colour. The fracture is even or splintery; the odour is tan-like; the taste feebly astringent and bitter. The colour of the powder cinnamon brown.

Botanical history.—According to Bergen, the Ash bark is identical with the *Cascarillo palido* of Ruiz, which is obtained from the Cinchona ovata of the Flora Peruviana, and which is the C. pubescens of Vahl.

Chemical history.—No distinct analysis of this bark has been made. Here are the results of some experiments made to determine the proportion of active principle:—

Quantity of Active Principle in a Pound of the Bark.

		Quinia.	Cinchonia.
Michaelis	1st sort ..	44 grs.	12 grs.
	2d sort ..	80 grs.	12 grs.
Goebel and Kirst....		12 grs.	none

Dark Ash Bark,—False Loxa,—Dark Ten Cinchona. Under the name of *China Pseudo Loxa*, or "*Dunkele Ten-China,*" Bergen has described a bark which has many of the properties of ash bark, and which is found mixed with the Loxa bark of commerce. It is principally distinguished from the ash bark by the irregular longitudinal wrinkles and transverse cracks, and by its darker colour. Guibourt regards it as an inferior kind of Loxa bark. Batka regarded it as a species of Buena; but Bergen says it agrees with a bark in the collection of Ruiz, said to be obtained from the C. lancifolia of Mutis.

(*b.*) *Yellow Barks* (*Cinchona flava*).

4. *Yellow Bark of English Commerce.*

History and synonymes.—Dr. Relph tells us, that in a letter received from a Spanish

merchant at Cadiz, in September, 1789, it is stated that the yellow bark had been lately known there, and that the first parcel which arrived was tried at Madrid, and immediately bought by the king's order, for his own use. From this circumstance, it was distinguished by the name of *royal yellow bark*, and on the continent it is still known by this appellation. The Germans call it *Königs-China*, or *China regia*; the French, *Quinquina jaune royal*. There is another name by which it is frequently known—*Calisaya bark* (*Quinquina Calisaya* of Guibourt); and which Humboldt says is derived from a province of that name, in South Peru, in which the tree yielding this bark grows. In English commerce it is known merely by the name of *yellow bark*, an appellation rather unfortunate, as we shall presently find, since the same term is applied on the continent to another variety—the Carthagena bark.

Commerce.—It is imported in serons and chests.

Varieties and characters.—In commerce, two varieties of yellow bark are met with—namely, the *quilled* and the *flat*. The finest quills are selected for filling the show-bottles in druggists' windows; and in some of the shops at the west end of London very fine samples are seen.

(*a*). *Quilled yellow bark* (*Cinchona regia tubulata* seu *convoluta*).—The quills vary in length from 3 to 18 inches,—in diameter, from 2 lines to $1\frac{1}{2}$ or even 2 inches,—in thickness, from $\frac{1}{2}$ to 6 or 7 lines. Very small quills, however, are rare; those usually met with having a diameter of from 1 to $1\frac{1}{2}$ inches, and a thickness of from 3 to 6 lines. Sometimes they are doubly, though in general they are singly quilled. The quills are in general coated. On their external surface they are marked by longitudinal wrinkles and furrows, and predominating transverse cracks, which often form complete circles around the quills, and whose edges are usually raised. These furrows and cracks give a very rough character to this kind of bark, by which, indeed, it may be readily distinguished from the large quills of the grey or Huanuco bark. The colour of the epidermis is more or less light grey; in those spots where the epidermis is wanting, the outer surface of the bark is of a brown colour. In other characters the quilled and flat pieces agree.

(*b*.) *Flat yellow bark* (*Cinchona regia plana*). The pieces of this variety are from 8 to 15 even or 18 inches long,—from 1 to 3 inches broad,—and from 1 to 5 lines thick. They are but little curved or arched. In general the pieces are uncoated (*China regia nuda*). Sometimes the uncoated pieces are found by drying to have become convex on the inner, and concave on the outer side. When the coating is present, it agrees in characters with the coated quilled yellow bark already described, in having wrinkles, furrows, and transverse cracks, and in the colour of the epidermis.

The inner surface of both quilled and flat pieces is even, and often almost smooth. On examination, it is seen to consist of fine closely-set longitudinal fibres. Its colour is cinnamon brown; the same colour is also perceived on the outer side of the bark in the places where the coating is removed.

Botanical history.—It is, I think, still uncertain what tree yields the yellow bark of English commerce. It is stated by Mutis, that the Cinchona cordifolia yields the *Quina amarilla*, or yellow bark; and hence, in the Pharmacopœia and other works, our yellow bark is stated to be the produce of C. cordifolia; but this is an error, arising from the circumstance of the term yellow bark (*China flava*) being applied on the continent to that which we call Carthagena bark; and Guibourt tells us that the authentic specimens of the yellow bark of Mutis, brought by Humboldt, are, in fact, specimens of Carthagena, and not of Calisaya bark.

Mutis states, that the *Quina naranjada* (orange Cinchona bark), is obtained from the C. lancifolia; and as many persons regard the orange bark of Mutis as synonymous with the Calisaya, or yellow bark of English commerce, we find that several writers attribute the latter bark to the C. lancifolia. Notwithstanding the authority of the persons who have espoused this opinion, I cannot admit it, since both Bergen and Guibourt declare Calisaya bark is not the orange bark of Mutis. The former examined the Quina naranjada (C. lancifolia of Mutis) in Ruiz's collection; the latter the *Quinquina orangé de Mutis*, in the *Muséum d'Histoire Naturelle* at Paris.

Chemical composition.—Pelletier and Caventou have published the following as the constituents of Calisaya, or yellow bark:—

Superkinate of quinia.
Fatty matter.
Slightly soluble red colouring matter (*red cinchonic*).
Soluble red colouring matter (*tannin*).
Yellow colouring matter.
Kinate of lime.
Lignin.
Amidine.

Subsequently to this analysis, cinchonia has been discovered in this bark.

The quantity of quinia and cinchonia contained in this bark has been examined by several chemists. The following are two sets of results, which, unfortunately, are discordant:—

Michaelis.

	Quantity of Quinia in a pound of Bark.
Quilled yellow bark	154 grs.
Flat uncoated yellow bark	286

Goebel and Kirst.

Thin quills	60
Thick quills and coated flat pieces	84
Uncoated flat pieces	95

When I speak of sulphate of quinia, I shall enter more fully into this subject.

(*c.*) *Red Barks* (*Cinchona rubra*).

5. *Red Cinchona Bark of Commerce.*

History and synonymes.—Dr. Fothergill, in a letter to Dr. Saunders, states, that in the year 1702, a parcel of bark was taken on board a Spanish vessel, and a portion of it fell into the hands of a celebrated London apothecary, Mr. D. Pearson. According to Dr. Fothergill, it was the red bark. In 1779, another Spanish ship, bound from Lima to Cadiz, was taken by an English frigate, and carried into Lisbon. Her cargo consisted principally of red bark, and was for the most part sent to Ostend, where it was purchased at a very low price by some London druggists, who, after some difficulty, contrived to get it introduced into practice. Such are the circumstances attending the first introduction of red bark into English, or I may say into European, practice. It deserves, however, to be noticed, that some South American travellers had already alluded to a red bark (*Cascarilla colorada*), though it is uncertain whether they referred to this variety.

The *red bark* of English commerce is synonymous with the *China rubra* of Bergen and other German pharmacographists. It includes the *Quinquina rouge non verruqueux*, and the *Quinquina rouge verruqueux* of M. Guibourt.

Commerce.—It is imported in chests; never, I believe, in serons. Good red bark may be regarded as comparatively scarce; and I am informed by an experienced dealer that it was formerly imported in much larger sized pieces than are now met with.

Characters.—It occurs in quills and flat pieces. The quills vary in diameter from two lines to an inch and a quarter; in thickness from one-third to two lines; in length from two to twelve or more inches. The so-called flat pieces are frequently slightly curled: their breadth is from one to five inches; their thickness from one-third to three-quarters of an inch; their length from two inches to two feet. Red bark is usually coated; its outer surface is usually rough, wrinkled, furrowed, and frequently warty: the presence of warts constitutes the variety called by Guibourt *Quinquina rouge verruqueux*. The colour of the epidermis varies: in the thinner quills it is greyish brown, or faint red brown; in thick quills and flat pieces it varies from a reddish brown to a chestnut brown, frequently with a purplish tinge. As a general rule, it may be said that the larger and coarser the quills and pieces, the deeper the colour. Cryptogamic plants are not so frequent on this as on some other kinds of bark. The rete mucosum is frequently thick and spongy in red bark, much more so than in yellow bark. The inner surface of the bark is, in fine quills, finely fibrous; in large quills and flat pieces coarsely fibrous, or even splintery: its colour increases with the thickness and size of the pieces: thus in fine quills it is light rusty brown; in thick quills and flat pieces it is a deep reddish or purplish brown. Some of the specimens of red bark which I received from Von Bergen approach yellow bark in their colour. The transverse fracture is in fine quills, smooth; in middling quills, somewhat fibrous; in thick quills and flat pieces, fibrous and splintery. The taste is strongly bitter, somewhat aromatic, but not so intense and persistent as that of yellow bark; the odour is feeble, tan-like: the colour of the powder is faint reddish brown.

Botanical history.—The tree which yields the red bark of commerce is at present unknown. It has been usually supposed to be obtained from the Cinchona oblongifolia, but this is in all probability erroneous. This species of Cinchona yields a bark called *Quina roxa*, or *Quina Azahar o roja de Santa Fe*; and which was supposed to be our red bark. But Bergen has examined the bark bearing this name in the collection of Ruiz, and finds that it is not our commercial red bark, but another kind, known in France by the name of Quinquina nova. Moreover, Schrader (who received a piece of the bark of the Cinchona oblongifolia from Humboldt) declared it to be a new kind; and Guibourt states that the red bark of Mutis, which was deposited by Humboldt in the Museum of Natural History of Paris, is not commercial red bark, but Quinquina nova. To these statements may be added the testimony of Ruiz and Pavon, and of Humboldt; the two first of which writers state, that the Quina roxa is obtained from the Cinchona oblongifolia, but that they do not know the origin of Quina colorada (the red bark of commerce); and Schrader states that Humboldt declared he did not know the tree that yielded red bark.

Chemical composition.—Pelletier and Caventou analysed the non-verrucous variety

of red bark, and found the following constituents:—

A large quantity of *superkinate of quinia*, and of *superkinate of cinchonia*.
Slightly soluble red colouring matter (*red cinchonia*).
Soluble red colouring matter (*tannin*).
Yellow colouring matter.
Fatty matter.
Kinate of lime.
Ligneous matter.
Amidine.

Several persons have attempted to determine the absolute and relative quantities of cinchonia and quinia obtained from the varieties of red bark.

Von Santen's Results.	Cinchonia.	Sulphate Quinia.
	From one pound of Bark.	
1. Fine quills of fresh appearance (from Cadiz, in 1803)	70 grains.	77 grains.
2. Large, broad, flat pieces, of fresh browned appearance (same chest)	90	15
3. Middling quills, from their pale appearance probably 20 years older than the previous (from Cadiz in 1819)	97	31
4. Broad flat pieces, not so thick as No. 2, (same chest as No. 3)	80	30
5. Middling quills, heavy, old (from London to Hamburgh in 1815: not met with now)	150	11
6. Thicker heavier quills (same chest).	181	9
7. Thick flat pieces, quills, and fragments (above 80 years in Hamburgh: a pale kind)	20	7

The following are the results of other chemists:—

	Cinchonia.	Quinia.
Michaelis obtained from 1 lb. of bark	32 grains.	64 grains.
Goebel and Kirst (quills and flat pieces)	65	40

(*d*). *Brown Barks* (*Cinchona fusca*).

6. *Huamalies, or Brown Bark.*

History and synonymes.—It is not known precisely when this kind of bark first came into Europe. Von Bergen thinks probably at the end of the last or commencement of the present century. This bark is not used in this country, and hence most druggists are unacquainted with it; but it is bought by some of our larger dealers for the foreign market.

Commerce.—It is imported in chests; never in serons.

Characters.—It is a thin spongy bark, and occurs in quills and flat pieces. Many of the quills agree in their physical characters with that kind of bark which our druggists denominate *rusty*, and which is picked out of the serons of Loxa bark. Some of the finer and thinner quills agree in their appearance with what the French term *Havannah bark* (in consequence of which Guibourt arranges Huamalies bark among the grey or pale barks), and are very different to the largest quills and flat pieces, which are thin and spongy, and have a rusty brown colour, their external surface having numerous wrinkles and warts. The taste of Huamalies bark is aromatic, and slightly astringent.

Botanical history.—It is not known what tree yields this bark.

Chemical history.—I am not acquainted with any regular analysis of this bark. From the experiments of Michaelis, as well as of Goebel and Kirst, it appears to contain quinia and cinchonia.

In a Pound of Bark.

		Quinia.	Cinchonia.
Michaelis	1st sort	12	..
	2d sort	28	48
	3d sort	34	60
Goebel and Kirst		28	38

Section 2.—True Cinchona Barks, having naturally a whitish epidermis. (*White Cinchonas*).

I think it most convenient to arrange these under three heads, according as they approach the pale, yellow, and red barks, already described.

(a). *Pale Barks, with a White Epidermis.*

1. *White Loxa Bark.*

Among the Loxa or Crown bark of commerce, we meet with quills having a white epidermis. Guibourt calls them *Quinquina blanc de Loxa.*

(b.) *Yellow Barks, with a White Epidermis.*

2. *Carthagena Bark.*

History and synonymes.—It is uncertain how early this bark was introduced into Europe. Bergen says it was first met with at public sales, in the year 1805. In Germany it is denominated *yellow bark*, (*Cinchona flava*) and hence it has sometimes been confounded with, and substituted for, the yellow bark of English commerce, which is called on the continent Calisaya, or Regia bark.

Bergen speaks of two distinct kinds of Carthagena bark.

1st. The *china flava fibrosa*, called in this country *fibrous or woody Carthagena bark*, and which I find to be identical with a specimen sent me by M. Guibourt, under the name of *Quinquina de Colombie ligneux.*

2d. *China flava dura*, or *hard Carthagena bark*, which includes the *Quinquina de Carthagene jaune*, and the *Carth. brun*, of Guibourt.

As both kinds are imported in the same parcel, and from the same place, and are sold as one kind here—as both appeared in commerce for the first time together—and as their physical appearances are very similar, I shall consider them as one kind. Geiger suggests whether they may not be the bark of the same species at different seasons, or growing in different situations.

Commerce.—It is imported in drum-like serons, and in half chests.

Characters.—It occurs in quills and flat pieces, the leading characters of which are the thin soft epidermis, whose colour is between yellowish white and ash grey, with a micaceous appearance: sometimes the epidermis is wanting. The colour of the inner surface and other parts of the bark is ochre yellow. The transverse fracture is fibrous and splintery, especially in the variety called from this circumstance *fibrosa.* The odour is slight, the taste slightly bitter, and astringent. The colour of the powder varies from that of cinnamon to ochre yellow.

Botanical History.—I have already mentioned in speaking of the yellow bark of English commerce, that Carthagena bark is obtained from the Cinchona cordifolia.

Chemical history.—Pelletier and Caventou have analysed one kind of Carthagena bark (Guibourt says it was the variety he terms *brown*), and obtained the following results:—

Kinates of quinia and cinchonia.
Yellow colouring matter.
Tannin.
Red Cinchonic.
Gum.
Amylum.
Kinate Lime.
Lignin.

Various experiments have been made, to ascertain the quantities of Quinia and Cinchonia present. The following are the results of Goebel and Kirst:—

	Quinia.	Cinchonia.
1 lb. hard Carthagena bark	56 grs.	43 grs.
1 lb. fibrous Carthagena bark	54 grs.	no trace.

If this analysis be correct, it certainly shows a remarkable distinction between the two kinds.

3. *Cusco Bark.*

This bark has only been known during the last seven years. It is the *Ecorce d'Arica* of Pelletier, and *China rubiginosa* of Bergen; but it is not described in the monograph of this last writer. It is characterized by a white, smooth, uncracked epidermis; which, however, is sometimes partially or wholly removed by the orange red tint of the other parts of the bark, by its fibrous appearance, and, lastly, by an infusion of it not precipitating a solution of the sulphate of soda. This bark principally deserves notice in consequence of MM. Pelletier and Coriol having discovered in it a new alkali, which they have termed *Aricina*, and which I shall have occasion to notice in our next lecture.

(c.) *Red Barks with a White Epidermis.*

4. *Cinchona Nova.*

History and synonymes. — The *Quinquina nova* is placed, by Guibourt, among the false Cinchonas, though I know not for what reason, since he asserts it is the red bark of Mutis, which is obtained from the Cinchona oblongifolia. In speaking of the origin of the red bark of commerce, I have already mentioned that Bergen declares the Quina roxa (obtained from C. Oblongifolia) of Ruiz's collection, to be the Quinquina nova of commerce. On these grounds, then, I have placed this bark among the genuine Cinchonas. It is also called, by some pharmacologists, *Surinam bark.*

Characters.—It occurs in flat or arched pieces, or even quills, sometimes a foot long: its epidermis is smoth, whitish, with few cryptogamic plants, with transverse cracks or fissures. The general colour of the bark is pale red, but which becomes deeper by exposure to the air. It has an astringent, somewhat bitter taste. In general appearance it has no resemblance to any other Cinchona barks (true or false) that I am acquainted with.

Botanical history.—I have already mentioned the facts from which we infer its origin from the C. oblongifolia.

Chemical history.—It has been analysed by Pelletier and Caventou, with the following results:—

A fatty matter.
Kinovic acid.
A red resinoid matter.
Astringent matter.
Gum.
Starch.
Yellow colouring matter.
Alkalescent matter in very small quantity.
Lignin.

5. *Other Red Barks with a white epidermis.*

Among the red bark of commerce we frequently find samples having a white epidermis. This is the kind called by Guibourt *Quinquina rouge à épiderme blanc et micacé.* There is another paler kind, which he terms *Quinquina rouge pâle.*

Div. II.—*False Cinchona Barks.*

Under this division are placed those barks which have been introduced into commerce as Cinchonas, but which are not obtained from any species of Cinchona. Their physical characters are for the most part very different from those of the genuine: moreover, they are not known to contain quinia, cinchonia, or aricina. I do not intend to describe them, but shall content myself with naming, as examples, the *Pitaya* or *Bi-coloured bark*, the *Piton* or *St. Lucia bark*, the *Caribbean bark*, &c.

CLINICAL LECTURE

ON

DISEASES OF THE SKIN.

By J. P. Litchfield, M.D.

Physician to the Infirmary for Diseases of the Skin, &c. &c.

1. *Leprosy—Characteristics—Treatment.*

It has been truly remarked, that no diseases are involved in such obscurity as those which constitute cutaneous pathology; and this fact appears the more extraordinary, inasmuch as there are no other forms of disease in which the phenomena are so readily recognized, and the characters rendered appreciable to the sight; they are also of common occurrence, and present themselves every moment to our observation, and under every variety of form and appearance. I am inclined, however, to fear, that it is in this very fact of the frequency of their appearance, and the hurried and inaccurate method of diagnosis consequent upon it, that we are to look for the cause of the chaos into which the subject has been thrown. In this, as in other departments of natural science, the multiplicity of facts has only served to embarrass the study: the same diseases have been described at different periods of their progress as dissimilar affections, or, with equal and more fatal want of discrimination, opposite diseases have been grouped together, and subjected to the same treatment.

An example of the obscurity produced by this misapplication of terms to cases altogether different, may be seen in the words *lepra and leprosy*, which have traversed the most distant ages, and been applied to the most opposite diseases, until at one period nearly all foul cutaneous diseases were confounded together under the name of leprosy, as we see in Paris as late as the sixteenth century, where an hospital was established for the reception of leprous patients. So also the translators of the Arabian physicians, after the revival of learning, have fallen into the error of describing a *tuberculous* affection, the elephantiasis of the Greeks, as a form of lepra: even a modern writer, Baron Alibert, has continued elephantiasis among the leprous diseases, although he does not appear to be ignorant of the important distinctions which exist between that disease and true lepra. Sometimes lepra is confounded with a disease, elephantiasis of the Arabs, which consists in tumefaction of the subcutaneous cellular tissue, and still more frequently do we find it mistaken for a variety of different diseases, such as eczema, psoriasis, or lichen.

True lepra has been found to exist in every part of the globe to which historical research on medical subjects has been directed; its frequent mention in the pages of the Jewish historians must be familiar to all, though a comparison of the statements of authors upon the subject of its prevalence in different ages, and in different parts of the world, clearly demonstrates that in proportion as civilization has advanced, its severity and frequency have been mitigated, and diminished. Baron Alibert thinks this result may be explained by the fact that civilization

gives to the mental powers much of the excitement upon which the healthy performance of the animal functions is known to depend, while the increased facility which exists in attaining articles of clothing obviates the want of cleanliness, which is so favourable to the progress of every variety of skin disease.

Mr. Plumbe doubts the *hereditary* origin of lepra, and some other scaly implis. According to Dr. Jarrold, "hereditary diseases do not naturally and necessarily attend the human race: leprosy, madness, gout, scrofula, &c., spring out of certain practices; they were all acquired, and will probably be eradicated. Leprosy, originating in want of personal cleanliness, has already given way to improvements which have taken place in that respect: linen is now substituted for woollen in many articles of dress; and other regulations equally friendly to cleanliness, have caused leprosy almost to disappear."

My experience so far agrees with that of Mr. Plumbe and Dr. Jarrold, that I have never been able to trace the disease positively to an hereditary origin. Occasionally, however, we find individuals possessed of a peculiar idiosyncrasy, which they appear to inherit from their parents, the cuticle being extremely delicate, and easily irritated by the friction of the clothes; and in such cases there is always a predisposition to disease. In the Alpine districts, and other damp mountainous situations, where cretinism prevails, leprosy is also constantly observed, and is supposed, like the other disgusting appearances of these wretched beings, to be hereditary. In these cases, however, it is clearly referable to the hardships and destitution which the sufferers undergo, as I have seen amply proved, during a residence of some months in Savoy, by the removal of the patients to healthier situations, and their being reclaimed from their idle and filthy habits.

Dr. Willan considers cold and moisture as the principal causes of lepra; and in the case to which I am about to direct your attention, cold appears to have been the exciting cause. The patient, James Brackley, is 30 years of age, and had his first attack of the disease five years ago. Upon the occasion of its first appearance, he had drunk freely, while in a state of profuse perspiration, of cold water; shortly after which he perceived upon the chest a number of small, round, reddish, and glistening elevations of the skin, smooth in the first instance, but which in a day or two became rough, and exhibited a number of thin white scales at the summit. These scales dilated rapidly in size, but retained their circular or oval form, the eruptions being surrounded by a dry, red, and slightly elevated border; the scales were at first thin and transparent, resembling somewhat those of the carp, but by degrees they became laminated and dense, so as to form thick prominent crusts. When the scales are removed, the skin under them presents a red and shining appearance; and if the first scale which forms has been forcibly detached, a small speck of blood is found upon the depression on the under surface of the scale, and also upon the slight elevation of the skin with which it corresponds.

When I first saw the patient, he complained of considerable soreness and pain in the patches of eruption; there was also a good deal of inflammation of the skin in the neighbourhood of the patches. This uneasiness nearly always accompanies the separation of the early scales, and is attributed by Mr. Plumbe to the raising up of the edge of the scale, produced by the tumefaction and elevation of the inflamed margin and fresh growth of the scale detaching the centre forcibly from the cutis. To allay this irritation, I ordered the patient a mucilaginous bath, formed by suspending half a pound of arrow-root in the ordinary tepid bath. Under this application the irritation speedily subsided, and the parts lost their pain and stiffness. The patient is now taking, with a very good effect, small doses of liquor arsenicalis, three times a day, in infusion of dulcamara.

I have also employed, as an external application, a preparation of iodine, introduced to my notice by an ingenious practical chemist, Mr. Leithead, and which was first prepared by that gentleman in the following manner:—He dissolved iodine in sulphuric æther, and after pouring a portion of the solution into a separate vessel, proceeded to add liquor potassa until the colour of the iodine had totally disappeared, and a copious precitation formed, which is the substance in question. My friend, Dr. R. D. Thomson, conceives it to be, not an *oxide of iron*, as was suspected by Mr. Leithead and Mr. Maugham, to whom the substance was shown, but a mixture of carbonate of potash, iodide of potassium, and a little iodide of carbon. Dr. Thomson conceives the active principle of the substance to be iodide of carbon, which we have accordingly obtained from it, in beautiful yellow crystals, of a needle-like form, which I now show you. The process which Dr. Thomson prefers for the preparation of the iodide of carbon is the following:—To a concentrated tincture of iodine he adds caustic potash until the brown colour of the iodine has disappeared; to the clear solution is then added water, which precipitates the iodide of carbon in the form of the beautiful yellow body before us.

The preparation which I have used in my practice, is the one formed by Mr. Leithead, and I trust that I may be permitted to allude to its remedial influence without entering further, at this moment, into the question of its chemical composition. I have notes of seven cases in which I have used it; five of them extensive glandular enlargements, in which it has proved successful, and two cases of lepra, in which it has also succeeded. In the present instance, I have ordered it in the form of an ointment, composed of half a drachm of the powder to six drachms of simple cerate. During the progress of the case, we shall have an opportunity of observing its effects on the disease.

2.—*Case of Impetigo.*

I shall put the next case suppositiously, before I present the patient. Thus a patient comes to you with an eruption of yellow itching pustules, appearing in large numbers, and changing, at the end of a few days, into thin scaly crusts. The eruptions appear principally upon the arm, on which they are thickly disseminated in clusters of yellow psydraceous pustules, approximating very closely together, and surrounded by a slight inflammatory border; the whole being somewhat raised, though the pustules are not very prominent or acuminated. After the pustules break and discharge, the surface becomes red and excoriated, exhibiting numerous minute pores, from which an ichorous discharge is poured out, accompanied with a troublesome itching and smarting. The discharge concretes into a brittle yellow scab, which disappears in its turn, and is succeeded by fresh crops of the yellow pysdraceous pustules, which reappear and pass through the same process.

Now, in order to arrive at an accurate diagnosis, suppose we run through the list of analogous affections: we know that crusts are found in some bullous diseases, as well as pustulous ones; but this eruption is obviously neither pemphigus or rupia, for the former is a large transparent vesicle, filled with pellucid fluid, and the latter a flat vesicle, containing a sanious fluid. We must confine ourselves, then, to the pustulous affections; but the disease in question cannot be either variola or vaccina, for both these diseases present themselves in such marked characters as not to allow us to think of them for a moment. It is not ecthyma, for the eruptions of this disease are large isolated pustules, sparingly scattered, and covered with dark greenish incrustations. It is not acne or mentagre, for the pustules of these diseases are rarely converted into crusts, but give rise more especially to chronic indurations. There remain, then, only porrigo and impetigo, and it is only necessary to decide between these two diseases: the first presents itself in such distinct and different characters as to render it unnecessary to enumerate them; it is obviously, therefore, impetigo; and, by observing the scattered and irregular order in which the eruption appears, we decide it at once to be the variety impetigo sparsa.

The patient, Ann Cashman, 42 years of age, has laboured under this variety of impetigo for ten months. The form of eruption, mixed as it is with vesicles, might lead an inexperienced observer to suppose the disease scabies. The size and slow progress of the eruptions, however—the heat and smarting which accompany them, and the copious exudation of ichor, together with the non-contagious character of the disease—will serve to determine the diagnosis. The accession of this eruption has been ascribed to violent exercise, intemperance, cold, and sudden depressing passions—especially fear and grief. With the patient Cashman, the last was the probable exciting cause; the disease having made its appearance immediately after severe mental suffering, caused by the loss of her husband, who died suddenly.

The vegetable acids, including lemons, limes, and barberries, have been much recommended in the different forms of impetigo, as also have the alkalies and sulphur, both externally and internally: the latter preparations have been fully tried at the Warwick-Street Dispensary, where Cashman has been a patient for some time, but apparently without effect. The mercurial alteratives have been found more useful; and I have directed the patient to take five grains of Plummer's pill every night, with an occasional brisk cathartic in the morning. I have directed her also to remove the irritating secretions from the pustules by frequent ablutions with warm water, and to apply the following sedative lotion:—

℞ Acid. Hydrocyanic. ℈ijss.; Liq. Plumb. s. a. gtts. xij.; Aqua Distillat. ℥viiss.; Alcohol, ℥ss. M. ft. lotio.

I conceive the application of this preparation should be watched, and its effects on the pulse cautiously noted, although I have never myself observed any unpleasant results to follow its use. In two cases upon which I have tried it, the marks of irritation surrounding the eruption were rapidly subdued, and the disease itself eradicated. We shall notice the result of this case; but judging from past experience, I should consider the prognosis favourable.

3.—*Case of Acne.*

I am also desirous of making a few ob-

servations upon a case of acne which I am about to dismiss. The patient, Robert Osborn, æt. 19, has laboured for more than two years under an attack of acne simplex, which shews itself in the form of hard inflamed tumors, which suppurate slowly, and appear only on the face, neck, and shoulders. The eruption never appears lower on the body than the shoulders or breast: it is first felt on the skin like a small hard seed, about the size of a pin's head. At the expiration of three or four days it becomes enlarged and inflamed; by the sixth or seventh day the eruption attains its greatest magnitude, and is then prominent, red, smooth, and shining to the sight, and hard and painful to the touch; about the tenth day a small speck of matter appears at the apex of the eruption; and when this is dispersed, a thin humour is secreted, which dries into a yellowish scab. After this the inflammation declines, the scab becomes loosened at its edges, and falls off about the third week. Some of the eruptions do not, however, proceed to suppuration, but gradually arise, become moderately inflamed, and subside in eight or ten days, leaving a faint and transient red mark behind. In the case of Osborn, the eruption has recurred in the above manner, at very short intervals, during the whole of two years. He ascribes the disease to cold, caught by working in his shirt sleeves. His general health is good, and his habits regular.

The treatment employed in the present case has been the alternate use of soda and sulphur baths twice a week; the soda bath being made by the addition of 1 lb. of the soda of commerce to an ordinary tepid bath; and the sulphur bath by the addition of 4 oz. of sulphuret of potash to the warm water bath. He has also taken five drops of Fowler's solution, with twenty-five of compound tincture of gentian, twice a day, until the only remains of the disease are a few faint purplish red marks on the face, such as you see, and which I apprehend will disappear before our next meeting.

4.—*Psoriasis Palmaria.*

I also mentioned to you at a former meeting the case of Sophia M'Creary, æt. 40, who has laboured under psoriasis palmaria for twenty-two years. When first presented to us, the hand and wrist exhibited a rough horny appearance, being cleft by deep furrows, which bled freely upon any exertion of the fingers. The nails, also, were considerably distorted, and changed to a yellow colour. The treatment employed in this case, and which has fully answered our expectations, has consisted in the use of local baths, formed by dissolving 1 oz. of sulphuret of potass in a hand-basin of warm water, and immersing the parts affected in it for ten minutes every night and morning. She has also taken internally the liq. potass. in mist. amygd. amar. The patient may now be dismissed, though there is always some danger of the disease recurring.

CASE OF HYDROPHOBIA:

WITH OBSERVATIONS.

To the Editor of the Medical Gazette.

Sir,

In sending you the following case of hydrophobia for insertion in the Gazette, I am well aware that numerous instances have already been published; yet the disease is so little comprehended, and is so invariably fatal, that it is desirable to furnish the most ample data for those disposed to investigate it. The publication, too, of cases, is useful as a record of our failures, since it may prevent experimenting with means which experience has already demonstrated to be completely ineffectual.—I am, sir,

Your obedient servant,
T. Blizard Curling.

St. Helen's Place,
July 27, 1836.

George Nicholls, aged 17, admitted into the London Hospital, July 23, 1836, under the care of Mr. Luke, about twelve mid-day, labouring under symptoms of hydrophobia. About six weeks ago he was bitten slightly on the right wrist by a spaniel, supposed to be mad. The dog was hung on the following day. He was recommended to have the part excised, but neglected doing so. The wound healed in a few days, and he continued in good health until the morning of the day before his admission, when he experienced pain in the axilla and about the shoulder. In the evening he complained of uneasiness about the throat; he was restless during the night, and early on the following morning felt so unwell, that his friends applied to a medical gentleman, who ascertaining the nature of the case, sent him to the hospital. When admitted, his eyes were prominent and sparkling, and the pupils dilated; he appeared restless, and indisposed to speak; complained of thirst; and his pulse was 120, and full.

When water was shewn him, spasms were immediately excited in the muscles of the throat, and he turned away from it, putting both hands before his eyes. He answered questions rationally.

About 20 ounces of blood were taken away by venesection, after which his pulse subsided to 100, and he was quieter for a short time.

Ext. Belladonnæ, gr. i. quâque horâ.

In the course of the afternoon the symptoms made decided progress. He soon became unable to swallow the pills. Vomiting ensued, and distressed him greatly. His thirst was so excessive, that he made several attempts to allay it by drinking water, but although a boy of considerable resolution, was unable to swallow any: he could not even manage to suck an orange. Towards evening he became much worse. There was considerable pain in the region of the stomach, and violent and almost incessant vomiting of dark-coloured matter. The guttural convulsions were more frequent. He was constantly spitting a thick matter forcibly from his mouth. His thirst continued undiminished, and his pulse was 180. The smell even of a piece of orange was disagreeable. He could not bear the sight of a polished tin receiver, nor of a candle. Breathing on him produced a paroxysm, and the monotonous repetition of the word "sharp," by an insane person in the same ward, annoyed him exceedingly; so much so, that he threatened, if he came near the patient, to tear him piece-meal.

Several tobacco injections, about a third of a pint of the infusion (ʒj. ad Oj.) were administered. After the first two he was somewhat quieter, but they produced but little effect on the system, and scarcely any on the pulse. He soon became furious, striking at those around him, and not allowing any one to approach him but his brother. It was necessary to confine him. He became delirious and weak. At eleven o'clock a fifth tobacco enema, consisting of half a pint of the infusion, was thrown up. In about half an hour his pulse began to fall; he became quieter, and a little before twelve at midnight expired.

Inspection of the body, eighteen hours after death.—Vessels of the pia mater distended with dark blood. Substance of the brain rather more injected than usual. But little serum between the membranes and in the ventricles. Nothing remarkable at the base of the brain, at the origin of the cerebral nerves, nor in the spinal marrow; and scarcely any fluid in the theca vertebralis. Sanguineous congestion of the lungs. Heart healthy. A few spots of ecchymosis in the stomach. Two worms (*Ascaris lumbricoïdes*) were found in the intestines. The glandulæ solitariæ, both in the large and small intestines, hypertrophied, and very distinct. Papillæ maximæ, at the root of the tongue, greatly hypertrophied. Tonsils enlarged, and containing a thick tenacious mucus. A cluster of hypertrophied mucous follicles, presenting a grey appearance, on each side of the under surface of the epiglottis. Pharynx and larynx highly injected, and several enlarged mucous follicles sprinkled throughout their lining membrane. Nothing particular in the cicatrix of the bite on the wrist. The filaments of the posterior branch of the ulnar nerve traced to the part were natural, but the nerve itself, at the elbow and towards the axilla, was somewhat vascular. On dissecting the same nerve on the left arm, it was found, if any thing, more injected. Blood throughout the body fluid.

This case presents few peculiarities, and the symptoms were developed in their ordinary and most frightful form. The acuteness and irritability of the organs of sense were very striking, and I have seldom witnessed in any other disease such obstinate and distressing vomiting. The tobacco failed even in producing its customary effects; and although this remedy has sometimes succeeded in allaying the spasms for a short period, it has now, I think, been tried without success sufficiently often to remove any pretensions that it may have had as a means of effecting a complete cure.

The pathological investigation was, as usual, unsatisfactory. Perhaps the most remarkable circumstance was the appearance of the mucous follicles on the under surface of the epiglottis, and in the larynx and pharynx. I have never seen them developed in the degree in which they were observed in this case. Few, if any, cases of hydrophobia are on record in which worms have been found in the intestines. Their presence naturally suggests the inquiry,

whether they acted as a predisposing cause of the disease. In tetanus we have abundant evidence to shew that intestinal irritation is often essentially connected with its origin. But in hydrophobia, a disease of the same system, though widely different in many important characters, we have no such evidence; and I view their occurrence in this case solely as an accidental circumstance.

Since the occurrence of this case, I have excised the cicatrix of a bite on the thumb of a man wounded by the same dog, but as yet there has been no indication of an attack of this dreadful malady.

ANALYSES AND NOTICES OF BOOKS

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

The Anatomist's Instructor and Museum Companion: being Practical Directions for the Formation and subsequent Management of Anatomical Museums. By FREDERICK JOHN KNOX, Surgeon, Conservator of the Museum in Old Surgeons' Hall. Edinburgh, 1836.

MR. KNOX tells us, in his preface, that "without museums the profession would be in the state of man without a language." He accordingly labours to render those speaking repositories as effective as possible: it is his leading object, he says, "to make the student really fond of visiting museums;" and we see that he is intent, also, on making the student work and form a collection for himself. The first part of this very neat manual explains all that relates to the forming of anatomical museums; the second is on the modes of preserving *diseased* structure.

In a chapter on *drawing*, that invaluable accomplishment of the pathologist, we find an anecdote of Tiedemann which we must extract:—

"Upon a late visit of Professor Tiedemann to this country, whilst inspecting Dr. Knox's private museum, the Professor was shewn some varieties in the arteries, which he had not previously observed, and he requested sketches of them, directing me merely to give the anomalous artery in a finished state, representing all the other parts, such as the muscles and bones, merely in outline. I shewed him some drawings of cetaceous animals; and the arch of the aorta of the dolphin being peculiar in the distribution of its branches, and new to him, I offered him a copy of the drawing; but with the pen, in a few seconds, he shewed me a perfect copy on the margin of his note-book. It must be admitted, that Professor Tiedemann is no ordinary person, and that the tact and power of touch which he evidently possessed, fully equalled the soundness and clearness of his judgment. On the occasion to which I allude, our museum was undergoing extensive repairs and alterations, and the various preparations were very much crowded together, so as not to be easily got at. I must confess my astonishment was not small when I found him, not only seeing at once every thing that was curious and interesting, but reaching them in a manner such as I would have deemed altogether impossible, except by the individual who had so placed them. He seemed to me to know every thing; and although, in a visit lengthened to upwards of two hours, nearly every object in the museum was not only looked at, but many of them minutely examined, he left the premises in precisely the same order in which they were on his entrance, and without any thing sustaining the slightest injury."

Respecting the *microscope* as an instrument in the hands of the anatomist, the following remarks seem just and practical:—

"I have had considerable practice with the microscope in investigating the nature of the food of the salmon, char, vendace, herring, &c. The magnifier I use for dissection is a common watchmaker's glass, of 2 inch focus. This glass leaves my hands perfectly free for dissection. The object being placed on a slip of fine window-glass, and a single drop of water placed upon the object, I proceed, with a needle in each hand, with the investigation. If, during this manipulation, any minute object appears which I cannot distinctly see, I immediately place it under the field of a more powerful magnifier. The microscope which I have found in this way to answer every purpose, is one sold by Messrs. Adie and Son. It is a

small compound microscope, and so perfectly portable, and so easily managed, that the anatomist can have it at all times beside him, and is thus enabled to solve a difficulty so soon as it presents itself,—a most important desideratum in every investigation, but more especially in miscroscopic research. During summer, for instance, the drops of water in which you may have commenced your dissection, will dry up in a few minutes, and you may subsequently in vain endeavour to repeat the dissection. The common watch-glass forms a convenient sort of cup for dissecting minute objects, but it is not so good as the slip of window-glass, particularly if the object is very minute, and the microscope you are using very powerful; the slightest movement removes it from the field of observation, and you are very apt to bring the magnifier in contact with the water, and in all probability thus lose the object. A few months ago a microscopic entozoon was discovered in the human muscles. The animal was at once microscopic, and extremely complex in its organization, consisting of a sac containing a worm. I was the first in Edinburgh to dissect the sac, and show the worm to Dr. Knox's students. I, however, particularly caution the young anatomist against resorting too frequently to the assistance of a magnifier. There are certainly a number of persons whose sight does not appear to be injured by so doing, but it assuredly has a most baneful effect on by far the greater number. To the young mind the microscope presents powerful attraction, and this fact seems to me to render this caution (which, however, I offer with great deference) more especially to be attended to. The sight of the practising surgeon cannot be too good, and if destroyed at an early period of life by the improper use of the microscope, the individual may find himself, when qualified by his acquirements to practice, perfectly disqualified by the imperfection of this most important sense."

We are very much pleased with this little work, which we think we may safely recommend both to students and professors. It is written in a light easy style; conveying, nevertheless, a great quantity of information, interesting to every member of the profession.

MEDICAL GAZETTE.

Saturday, August 6, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

SELF-SUPPORTING MEDICAL INSTITUTIONS.

A VERY unwarrantable mistake seems to prevail in some quarters, to the effect that there is a sort of relationship, if not an actual identity, between the Club nuisances and the Self-supporting Dispensaries. We say unwarrantable, because even a slight degree of attention to what has been said and written respecting both methods of procuring medical aid, would be sufficient to establish a marked contrast. The one is obviously based on a mere instinct of selfishness; the other on a provident exercise of the reasoning faculties. Quacks get hold of the one—monopolize it—sell themselves for a paltry equivalent, and degrade by their doings the profession to which they claim to belong. The practitioners who support the other system resort to no such intriguing clandestine arts; they state fairly the principles upon which they proceed, and claim a just, though in the beginning it may prove a scanty, remuneration for their services.

But a much more serious mistake is committed by those who, without bestowing any due consideration on the subject, entertain prejudices against the provident plan as an innovation, and, though well aware of the overwhelming objections that may be brought against the common Dispensaries, nevertheless refuse encouragement to those other institutions which have already been proved to be abundantly fraught with

superior advantages. We have again and again pointed out the peculiarities of each system, and should only tire the reader with repetitions, were we to take up the subject in its several bearings afresh. But we may, perhaps, be allowed to quote a few passages from an ingenious pamphlet which has just fallen into our hands*, and in which we find all the essential points connected with the question ably touched upon. In regard to the old dispensary system, for example, it is shown, in the first instance, how much inferior were the means of affording that immediate relief which can alone be effectual and satisfactory both to patient and medical attendant. Then the waste and misapplication of funds, on the plan hitherto followed, is stated in a clear light: which, indeed, is after all a question of finance, to be determined by reference to the account-books kept in the respective institutions. We shall copy a striking passage:—

"Upon referring to those reports of the Dispensaries of London, in which the amount of receipt and expenditure is published,—a measure not always adopted,—it is sufficiently obvious that four or five thousand patients cannot be relieved annually, under an amount of honorary contribution of less than 1000*l.*, whereas, upon the provident principle, not much more than 100*l.* is amply sufficient for this purpose, as may be seen at once by a reference to the Report of the Coventry Self-supporting Dispensary. Thus, without taking into consideration any other collateral advantages which provident Dispensaries possess, and which render such expenditure worse than useless, it is obvious that *several thousands of pounds* are every year, at least, *needlessly* expended on the relief of the sick poor, in the metropolis and its suburbs. Many more might be relieved at a comparatively small expense, whilst the greater part of these funds might much more advantageously be diverted to other measures for the relief of the temporal and moral wants of the poor. And when we consider how numerous and important the measures are, which at the present time are in active operation for this purpose, this view of the subject alone is one of no small moment."

The moral considerations are next adverted to, under which head several strong arguments are adduced by the author in favour of the provident establishments: his demonstration also of the mode in which the self-supporting dispensaries come in aid of the hardships inflicted under the New Poor-Law, is equally satisfactory. But that part of the tract which relates to the discrimination which is exercised with regard to the applicants for relief under the new system, may perhaps be advantageously extracted. Not that there is any thing new in what we are about to quote,—for the same points have been already urged more than once in this journal,—but we suspect that much of the prejudice which is abroad respecting the self-supporting system is grounded on short-sighted views of its utility and expediency.

"This method is most of all calculated to restrict the proposed relief to suited applicants, not merely as it regards general character, but pecuniary necessity. It is a common objection to Dispensaries, as at present constituted, that their advantages are greatly abused, not merely at the expense of really deserving objects of charitable relief, but even to the detriment of the medical profession; no sufficient security being provided against the admission of a large proportion of cases for which they were never intended, and the intrusion of persons well able to meet the expenses of medical attendance. It is true, no one can be admitted to the benefit of these charities without a recommendation from a governor; but how generally does it happen, especially in a metropolis like London, that governors are very little

* A few Hints on the Principle of Provident or Self-supporting Dispensaries. By C. Wilkinson, M.D. London.

acquainted with those to whom they give tickets. How generally are they given at the first application; and the more so from this circumstance,—that the applicants are at least supposed to be labouring under actual disease, or they would not apply; since there is no other inducement (as in the case of hospitals, where shelter and other comforts are provided) to make such an application. There are likewise other ways in which the charitable tickets of these Dispensaries are the subject of abuse. Many even of the more wealthy contributors are in the habit of availing themselves of this method of obtaining medical attendance for their servants, a class for whom they were certainly never intended. By another class of subscribers, the lower order of tradesmen, the privilege of possessing or the facility of obtaining them, is held out, it appears, as a bonus to ensure customers; and even the tickets themselves are said not unfrequently to have been turned into saleable commodities *. Whereas upon the principle of provident Dispensaries, the admission even of a somewhat higher class is no source of disadvantage to the poorer, because the ordinary fund, by which all the exclusively medical expenses are paid, is raised by the applicants themselves, and will, therefore, always bear proportion to their number, so that the admission of any given number will not exclude others. But the fact is, that a systematic inquiry into the character and circumstances of each applicant, by a subcommittee appointed for the purpose, is a necessary part of the arrangement of these institutions; and that inquiry is to be made, not while the applicant is labouring under disease, but while in health, and, therefore, under circumstances which afford ample opportunity for the necessary investigation. And by this means every security is provided against such abuses."

All this might be strongly confirmed by referring to what is actually taking place at Coventry, and in other localities where the provident plan is in operation. The grand question, however, now is, how far it were desirable to introduce self-supporting Dispensaries into the metropolis or large towns already well supplied with charitable and well-regulated institutions.

The author of the little pamphlet before us advocates the expediency of such an extension of the system: and we confess we see not why it should not be admitted into great towns, so long as it is directed to the relief of proper objects. Let it be fairly tried; there can be no objection to that. But there is certainly no such necessity here for its introduction—a fact which the experimenters should keep in view: if they do not, we foresee that it will render their attempt in the larger towns more precarious, while it may injure the prospects of the system in those parts of the country where at present there can be no question of its utility.

* See Med. Gaz., vol. xv. p. 312.

THE MEDICAL SESSION.

SCHOOL ARRANGEMENTS.

There seems to be more than ordinary bustle of preparation among the schools for opening the approaching session. Some of the changes and new appointments we have already noticed: others may deserve a passing word or two.

In regard to Bartholomew's, we were premature, it seems, in announcing Mr. Pereira's accession to that school: the lecturers there were very anxious to have him, and waived every objection as to his continuing to lecture at another establishment,— which Mr. Pereira insisted on being left at liberty to do: this, in fact, being the *sine qua non* on which he listened to terms from the hospital. The Governors, however, have thought fit to interfere, and to come to a resolution that a lecturer in *their* school shall be exclusively theirs: the loss of an able teacher for the chair of Chemistry seems to them a matter of minor importance,—while, be it observed, they stultify themselves daily in allowing their *medical officers* to hold appointments in other institutions!

But this is their affair. Mr. Pereira

will as hitherto continue his valuable lectures at the Aldersgate School; where, by the way, we are glad to observe that the *corps didactique* is particularly strong for next session: among other attractions, we perceive it announced that Dr. Hope, of St. George's, is to deliver the course on the Practice of Physic.

It was lately mentioned in this journal, that among other arrangements which had taken place at King's College, Mr. Mayo had been inducted into the chair of Surgery. Whether that step was judicious or not, we did not venture to pronounce an opinion: Mr. Mayo is known to be ambitious; and much might be expected from giving any man the appointment of his choice. But we confess we were not prepared for what has happened. Dr. Quain resigns the chair of Anatomy at the London University; and who, of all men, starts for the place, but the newly-appointed surgical professor!

We ask, is this creditable—is it decent, in the eyes of the profession and the public? In every point of view we hold it *not* to be so; and we rather suspect that Mr. Mayo himself will be of that opinion ere long. He will certainly get nothing in Gower-street. How, then, will he stand with respect to his colleagues? They could, we believe, very well afford to lose him, and would offer not the least bar to the attainment of his wishes: but how must they feel on his rejection? We shall be plain with Mr. Mayo: this over-vaulting ambition of his is both pitiful and ridiculous: in our opinion, instead of scampering about, as he seems so strongly disposed to do, he should confine himself to his chair of surgery, and be thankful that he has got it.

MEDICAL WITNESSES' BILL.

This very simple and proper measure, after many delays, was read a third time, and passed the House of Commons, on Wednesday night. It had a narrow escape of being postponed even then, as there were not above thirty-six members in the House at the late hour (2 o'clock) at which it was brought forward. We give a copy of the bill in a subsequent page, and may have a few remarks to offer on it at a future opportunity.

CASE OF POISONING WITH SULPHATE OF COPPER.

We are enabled, through the kindness of a correspondent, to give an authentic account of the case which we lately extracted from the *Times* newspaper. The reports in the *Times* are in general, we believe, as correct as those of any other newspaper ordinarily are; yet a comparison of the following statement with what we recently published (p. 624, *ante*), will shew how little the daily press is to be depended upon as a source of information for medico-legal purposes. Our correspondent, who is fully impressed with the desirableness of having exact and trustworthy accounts of cases of this kind, suggests that there ought to be a premium offered in order to induce the newspaper reporters to take more pains than they usually do: by such a process their reports would probably lose nothing of their interest for the public (if they would not rather gain in that respect), while for the profession they would form a mass of the most valuable illustrations.

A little girl, of the name of Tyson, whose parents live in Weymouth-street, Walworth, found some pieces of blue-stone, near a shop in Cross-street, and brought them home with her as pretty objects. They were given to another child, of sixteen months [not two years], to play with. This child [the infant] was seen by a neighbour to put pieces of the blue-stone into her mouth; but the person who saw her did not know

that there was any harm in it. The child became very sick, and vomited in about a quarter of an hour. This took place about two o'clock, and the child died about six. The illness, therefore, lasted nearly *four* hours, instead of one, as reported in the newspaper. All the liquid vomited was of bluish-green colour, and there were pieces of blue-stone in it. The child was alternately cold and hot, and became insensible for some time before death, but it did not appear to have been *convulsed* beyond the straining of the vomiting, which was severe; the bowels were not opened during the illness.

The medical attendant, I understand, was a gentleman who walks one of the Borough hospitals, brother of Mr. G., of Newington Causeway. The first medicine given was described as something like soda-water: afterwards, a mixture of magnesia and salts was administered.

The jury, I was told, were for having the body opened: it was *not* opened.

LECTURES

ON THE

DISEASES OF THE NERVOUS SYSTEM.

By M. Andral.

As published in the *Gazette des Hôpitaux*, with the approval of the learned Professor.

HYPOCHONDRIASIS.

The love of one's self, when exaggerated, proceeds to extreme attachment to life, and consequently to fear and horror of death; it is also the parent of hypochondriasis. This is the first form of the disease, but there is a second which arises from the diminution of the sentiment of self-love, and thence results suicidal monomania. With regard to its etymology, the word hypochondriasis is bad; it does not truly designate what is intended, for the seat of the disease is in the nervous system, and not in the organs of the hypochondrium, notwithstanding that in some monomaniacs there is pain in that region.

Hypochondriacs imagine themselves affected with diseases which they have not, or if they have them, they exaggerate in their imaginations the extent to which they are so affected. A longer or shorter term after the invasion of the disease, the organs which are the seat of the real or pretended pains may become physically deranged. It may not be useless here to make some remarks with reference to the point at which hypochondriasis may be said to take its origin.

1. In certain cases the brain is primarily and exclusively affected. The hypochondriac has his reason impaired in regard to one circumstance, but enjoys perfect sanity in other respects. 2. The primary seat of the disease is not always, however, in the brain, but the sensibility of certain organs is exalted, and the brain thus comes to perceive more numerous and delicate impressions; the individual then becomes changed, and learns to regard those sensations as painful; he dwells with morbid pertinacity on his feelings; and this constitutes his disease. Thus the subjects of this affection believe themselves to be ill, while there only exists a simple exaltation of the natural condition. They then become conscious of ordinary phenomena which have before escaped their notice—as, for instance, of the beating of the heart, of certain sounds, &c. &c. Under these circumstances, the brain, occupied without ceasing in the investigation of the bodily sensations, reflects them again upon the organs in which they originate, and thus do these at length become actually diseased. 3. An organ, we shall suppose, is primarily affected, and this for a longer or shorter time; the patient concentrates all his thoughts upon this one point, and ends by becoming hypochondriacal. In this case the disease is only consecutive: all organs do not produce by their sufferings an equal tendency to hypochondriasis. The affections of the stomach are well known as doing so in a remarkable degree, but we must not thence infer that all cases of hypochondriasis are connected with disease of the digestive organs, as some medical men of the present day hold. M. Broussais, for example, has thought so. Others, again, profess opinions diametrically opposed to this; which is equally wrong, both such doctrines being too exclusive. Disease of the bladder sometimes gives rise to the same kind of symptoms. We must not, however, thence infer that hypochondriasis is seated in the suffering organ; for although in some cases the restoration of this removes the hypochondriasis, yet in other instances the mental affection persists, though the physical organ has been restored to a healthy condition.

Causes.—I have already mentioned a few of these. There are some, as we have seen, which, in the three cases above pointed out, favour the development of

hypochondriasis. Among those causes some are appreciable, and others are not. One of the most frequent is the change which the functions of the brain undergo. Thus we must place in the front rank the change which is produced by the substitution of a life of inactivity for one of occupation and mental exertion: next comes deficiency in the exercise of sensibility and of movement—in a word, the abrupt cessation of the physical and moral habits. In this way we easily explain the hypochondriasis with which men of business are affected when they get rich enough to retire. It may happen that an individual may always have led such a life as never to have had his functions properly exercised: the brain cannot then attend sufficiently to external objects, but is exclusively occupied with the individual himself. Thus too sudden or complete a degree of isolation may produce hypochondriasis.

Persons may be placed in circumstances which deprive them of the requisite portion of wants and desires, &c.; in consequence of which they become hypochondriacal, as we see among the rich. On the other hand, some experience imperious passions,—they gratify them—they abuse pleasure; but at length come to a period when they can enjoy them no longer; and being tormented by unceasing recollections of the past, become hypochondriacs.

An examination of the sources of human misery will display hypochondriasis among those of insufficient judgment, or reasoning powers. The same thing happens to a man undertaking a study of which he is incapable. Thus we see unprofessional persons becoming hypochondriacs from the perusal of medical books; others who have been hypochondriacs before, and taken to medical reading, have had their complaint exalted to its highest degree. Students of medicine, too, are subject to this affection when they begin their studies.

Symptoms.—The most characteristic of these is a belief in imaginary evils, or an exaggeration of such evils as have a real existence. Some believe themselves subject to some one particular disease; others conceive that they successively become affected with several. Some will consult their physician about their malady, and he may convince them of the impossibility of their having the supposed complaint, and for the time the patient departs; but this is not permanent, for they often return, it may be the very next day, with some new phantasy, as imaginary as the first. Thus you may have satisfied one of these self-tormentors on the score of an imaginary amaurosis, and within two days he comes back to consult you about a pretended stone in the bladder. The fear of syphilis, and the idea of having caught that disease, is very common among hypochondriacs.

However it is to be accounted for, we certainly do very frequently observe some nervous disturbance about the organ of which the patient complains. If, for instance, he thinks that he has got a gastritis, his digestion will be found to go on badly; he will have flatulence, loaded tongue, &c. just as in a real affection of the stomach. Nourishment is often refused by the patient. A young woman who had had gastritis, but which had been cured, supposed her complaint still to endure, and would not take food. At length, giving way to despair, and intending to destroy herself by producing indigestion, she eat very heartily; but, to her great astonishment, she digested the meal extremely well. She was greatly disconcerted, and returned to her low diet again, till, somewhat later, being pressed by hunger, she once more made a full repast; and this time also her digestion was as good as before. These two experiments might have had a sufficient influence upon her to cure the phantasy, but unfortunately this was not the case: her despair increased, and terminated in madness. It was remarkable in this case, that the patient depicted, with perfect accuracy, all the imaginary sufferings which she professed herself to experience.

There are some hypochondriacs who fancy that their lungs are diseased; and who, in consequence of this notion, breathe with extraordinary rapidity: one would suppose they were just about to be suffocated; but if you can only contrive to get them fully occupied in any way, then their breathing again becomes like that of other people. Others imagine that they have got disease of the heart, and then there is some embarrassment about that organ; its condition, as to nervous function, is disturbed, and palpitations are the result. But here, as with regard to respiration, the symptom is seen to cease when the attention is fixed on some other object. Yet others have a firm persuasion that such and such disease has taken a firm hold upon them. Thus a man shall imagine that he has got stone in the bladder, and then he goes every minute to make water.

Independently of the organ towards which the hypochondriac concentrates his ideas—independently, too, of any pain—the innervation becomes altered; and thence he imagines a great variety of different diseases. It is curious to observe how a nervous person may, as a consequence of his fears, excite real suffering in parts which he regards as diseased. Fear of hydrophobia, for instance, when a

person has been bitten, may produce hypochondriasis.

Let us observe what those nervous disturbances are which we find to be capable of exciting that suit of sensations which pass into pain, and become a source of new affections. 1st. With regard to organic life, we shall find that the phenomena vary much, according to the organs which are affected. If the stomach be the part, there will be vomiting, dyspepsia, too loose or too confined a state of the bowels,—all, in short, that characterizes disturbance of the digestion. On the side of the circulation, we have palpitations, beating in head, epistaxis, &c. Some who are more inveterately hypochondriacal, represent themselves as feeling pulsations all over them simultaneously with the heart, which symptom is merely produced by extreme sensibility. Often there are numerous disturbances affecting the secretions: the perspiration, the urine, the saliva, all undergo an increase or diminution, or some change in their physical or chemical properties. The same often happens with the bile. On all these occasions the crisis is frequently marked by the reappearance of the suppressed secretion. 2d. With respect to the life of relation: the sensibility is modified, the patients complain of nondescript sensations in the head, of pain, itching and giddiness; and, again, the special senses also participate in this morbid condition. The limbs and trunk are the seat of pains, which the hypochondriac multiplies in his imagination, and dwells upon with pertinacity. Cramps, a sense of choking, a ball in the throat, spasmodic contractions, are all frequently in the hypochondriac's list. With regard to the intellect, in some this remains entire, while in others (and this is more frequent), it is gradually lost as the disease advances. The tastes and the general character change: the sole dominant passion is the desire to be restored to health; forgetfulness of all others follows, and the patient becomes a mere egotist. Sometimes, however, we meet with individuals who retain a tender regard for their friends; some constantly exclaim "I shall go mad!" and this is actually very often the case. It may happen that the hypochondriasis disappears when mania supervenes.

The conduct of the patients is in conformity to their peculiar ideas. One does not choose to follow any occupation, because he apprehends an apoplexy; another will not speak, because he thinks he has got disease of the mouth or throat. One avoids the slightest motion with the greatest care, lest it produce some mischief; another does not eat, because he says his stomach will not allow of it. Some will not leave their room,—they shun the light,—and all this on some imaginary pretext. All are exceedingly attentive to their sensations: they constantly pore over what passes from them, examining the urine, spittle, &c. Such persons have an apprehension of death. Always the slaves of this engrossing idea of their disease, they make it the subject of their constant discourse; they apply to every one for some cure of their complaints; they are constantly changing their medical attendant, and cannot be reckoned upon for a moment. Quacks often acquire fortunes by the unprincipled use they make of the credulity of these unfortunates. *The homœopathists and magnetisers delight in such patients;—it is such as they who do honour to their doctrines!*

As a consequence of these different lesions of innervation, the hypochondriac may really become ill,—his disease may become organic. There are some persons who really suffer, and who are erroneously regarded as monomaniacs, but who are in fact the victims of hypochondriasis. This is a mistake to be avoided.

The duration of the disease is indefinite, and its course varies much; sometimes it is remittent, and with a true crisis. Two varieties of hypochondriasis may be established, according as the organic lesion which accompanies it be primary or secondary. The termination varies according to the nature of each particular case.

As to *treatment*, we must ascertain by a careful examination whether or not there is any organic disease. If there be, of course it must be combatted; but this will not always suffice to ensure complete success. What are we to do, then? considering hypochondriasis as a mental disease, we ought to oppose it by moral means. It is not prudent to fly in the face of the patient's fantasies; not that we are always to give in to them, neither; but what we ought invariably to do, if possible, is to gain the confidence of the patient, that we may exercise the greater influence over him. We are compelled, occasionally, to admit the reality of his sufferings, that we may combat them to greater advantage. A lady of high birth apprehended a miscarriage; she had herself surrounded by light, and then imagined that she was about to die consumed by that light. Her medical attendant placed her in the dark, and rubbed her with phosphorus; she of course became luminous; after which the light disappeared, and the patient was permanently cured.

When hypochondriasis is carried into *business*, it is often cured. It establishes new relations as regards the patients, excites them, occupies their minds, and induces

them to take exercise. Travelling, particularly to watering places, is useful in two different modes: first, because it is a source of healthful recreation, and secondly, because the patients attach importance to the employment of remedies. Moral therapeutics, if I may so call it, are then of service; but physical means are also of importance. As to the regimen, it ought neither to be exciting nor depressing, but ought to resemble that of health, such as the patient has been accustomed to, and such as his occupations require. Sometimes spontaneous recovery takes place.

SUICIDAL MONOMANIA.

Opposed to the love of life, and of its preservation, man is sometimes possessed by a sentiment which leads him to self-destruction. This feeling is designated "suicidal monomania." It is not always the result of mental alienation: some persons put an end to their existence who are not monomaniacs. It is necessary, therefore, for us to distinguish between those cases in which suicide results from the absence of reason, and those wherein the individual destroys himself as the result of other circumstances.

The *causes* are numerous, and it is curious to study them. Some of them escape our means of detection, but others are quite appreciable. According to a table formed by M. Falret, of the suicides which took place between 1797 and 1823, the following results appear. Of 6782 cases, 254 were from disappointed love, and of this number 157 were in women; 92 were from jealousy; 125 from the chargrin produced by having been calumniated; 49 from the desire, without the means, of vindicating their characters; 122 from disappointed ambition; 322 from reverses of fortune; 16 from wounded vanity; 155 from gambling; 287 from crime and remorse; 728 from domestic distress; 905 from poverty; 16 from fanaticism: but cases of this last description are rare in France, and the number varies according to the temper of the times. M. Esquirol has further remarked, as productive of suicide, the abuse of spirituous liquors and onanism. In towns the cases are much more frequent than in the country, where, indeed, very few are met with; and this may be easily understood when we consider how much our great cities become theatres in which all the passions are developed.

In what state does an individual present himself who cuts short his own life? He may be insane, and the suicide be the result of his disease. But among such maniacs, some have reasons for the act which are easily detected, and it is not then with them a true suicidal monomania. Others have no such reasons for the act, and the tendency to suicide constitutes all their madness. In these last, we observe no ideas except the systematic desire of self-destruction: they are a prey to continual melancholy, and apprehend dangers which they can only avert by suicide. Others, again, are under some hallucination—as that of hearing voices which urge them to the deed. One class of monomaniacs are more especially disposed to suicide—viz. the melancholic. We see them by degrees becoming more and more disgusted with life, and then falling into a state of moral and physical weakness. Surrounded by gloomy ideas, their indifference, progressively augmenting, extends to all; society becomes a burden to them—the slightest exertion painful—they are overwhelmed with depression—and a tragedy, of which they are themselves the heroes, terminates their career. In all these cases, the suicide is the effect or consequence of another monomania; while, in others, the desire to terminate their existence is the only disease. It sometimes happens, that the suicidal monomania corresponds to the loss of function in some organ, and its disappearance is contemporaneous with the restoration of this to its healthy state.

Imitation also plays an important part in these cases. An English author states, that the example of a single suicide in a regiment led to several others in one day; and this kind of monomania has been known to occur epidemically, in Germany. There have also been associations, or clubs, the members of which have agreed to destroy themselves, and have put this intention into execution at the preconcerted time. In some instances (which, however, are fortunately rare), men who are rich and apparently happy, and with every reason to value life, have an irresistible tendency to commit suicide. Some have the suicidal propensity come on suddenly, and suddenly disappear; others are long affected with it. A personage of consequence, enjoying a considerable fortune, was engaged in a tour of pleasure, through Switzerland, with his wife: they came one day to a precipice, when he suddenly exclaimed, "I have lived long enough," and threw himself over it. Up to this time, the gentleman had lived very happily. Instances are met with of persons who cannot ascend to any considerable elevation without experiencing this unfortunate tendency.

The cause of this monomania, whatever it may be, does not operate with the same force at all periods of life: the more life advances, the more does the attachment to it increase. From eighteen years of age to twenty five, men die with courage, but do not destroy themselves. It is from thirty-

five to forty-five that the greatest number of suicides occur, as has been shown by M. Falret: one would expect them to be more frequent before this time, but such is not the fact. Of 6782 cases, 678 were below twenty years of age; and of this number, 487 were between fifteen and twenty, and 181 below the age of fifteen. A child of nine years wished to destroy himself, but this is the only case known at such an early age. After forty-five, suicide becomes more and more rare; above seventy, there are scarcely any examples of it; nevertheless, the father of the celebrated Barthez killed himself at the age of ninety. His son also wished to do the same when he was old, and regarded himself as cowardly in not following the example of his father, who starved himself to death.

Both sexes display the suicidal tendency, but the number among men is in general greater; the proportions, according to M. Esquirol, being as three to one. There are also differences according to the country. Thus, in France, there are more suicides among women than there are in Germany. Two-thirds of the suicides are among bachelors; marriage is therefore a condition which tends to destroy the sentiment of *tedium vitæ*. The same remark has been made in England. Insanity, in general, is hereditary, as I have already said; but with respect to the suicidal mania, this is extremely conspicuous. Occasionally, whole families are seized with this kind of madness, and in some cases we observe, in different members of a family, forms of insanity which do not resemble each other. I knew a very remarkable instance of this: the father sunk under an acute affection of the brain, the mother died with her reason quite entire. Of six children, three were boys: the first is a man of original mind; the second spent all his money, and went mad; the third has a great disposition to choler. Of the three girls, one died insane and apoplectic; the other died at her accouchement, with symptoms of insanity; the third died young, of cholera, without, however, any marked change of intellect having taken place;—of course it is impossible to say what might have happened had she lived.

The seasons have some influence on the suicidal monomania. The months which yield most cases, are (according to M. Esquirol) April, May, June, July, and August. On the contrary, the Council of Health of the Department of the Seine have found the maximum frequency to be in spring, and the minimum in autumn. In England the result has been different; the greatest number of suicides there has been in the months of May, September, and October. In places more to the south, as at Marseilles and Naples, the results have been the same as at Paris. The difference of climate may explain, to a certain extent, the variations which thus occur in different countries. However this may be, the countries actually affording the greatest number of suicides are France, Germany, and England. Italy and Spain give fewer, but it is matter of reasonable doubt whether the registrations and reports be in these countries equally exact and rigorous. The number of suicides in certain countries goes on progressively increasing. At Berlin, during the seventeen years which followed 1758, there was only one in 1700 deaths; from 1787 to 1798, one in 900 deaths; from 1798 to 1812, one in 600; from 1812 to 1822, one in 100. Here, however, the same remark may be made as above, viz. that it is a question whether the records of such occurrences were kept in 1758 as regularly as in 1822. We must also take into account a variety of other circumstances, particularly political events.

In admitting the influence of climate on the number of suicides, we are not to lose sight of the more important considerations presented by the manners, religious institutions, &c. of different countries. In India the religion of the natives leads to the commission of many suicides: there are every year perhaps four or five hundred fanatics, who throw themselves beneath the wheels of the cars dedicated to their deities. Spiritual philosophy, when not wisely counterbalanced by christianity, has a tendency, like the doctrines of materialism, to favour the commission of suicide.

The suicidal monomania may be acute or chronic; it may be cured, but relapses are frequent. M. Esquirol gives a striking illustration of this in a woman who, during thirty-four years, had displayed this fatal propensity. She experienced relapses at the ages of 36, 37, 41, 48, 60, 61, 63, 64, 67, 68, and 69. The mother of this woman had been remarkable for her disposition to anger; and a daughter of her own had tried to destroy herself at the age of 14.

As to *treatment*, nothing specific can here be pointed out. It will readily be understood that various circumstances, particularly the cause of the malady, must constantly alter the indications, depending as they do on moral considerations. Ample room is afforded for the sagacity, prudence, and tact, of the physician: as to the rest, you may call to mind what I have already said in speaking of hypochondriasis.

ST. THOMAS'S HOSPITAL.

Case of Enuresis; with Remarks.*

MARY ANN WHEELY, æt. 16, admitted into Mary's ward, under the care of Dr. Roots, January 14th, 1836. States that about five years since she went to bed quite well, and slept as well as usual till one or two o'clock in the morning, when she was awoke by an involuntary discharge of urine, accompanied with a little pain about the crests of the ilia, which she refers principally to the course of the inguino-cutaneous nerves of the lumbar plexus. This affection has continued much the same up to the present time. She was under medical treatment about nine months since, but without deriving the least benefit. About a month ago she had a little pain in the loins, and slight œdema of the lower extremities, which, however, soon subsided, without the assistance of medicine. She is now unable to retain her urine, except when sitting perfectly still; the least exertion, coughing, sneezing, or movement of the abdominal muscles, producing an involuntary discharge from the bladder. She has not at present pain anywhere. Tongue clean, but rather redder than natural at the tip. Pulse 104, rather full, but soft. She menstruated, for the first time, about three weeks ago, and since that time has been rather better as regards her general health, but the enuresis remains the same. She has perfect command over the contents of the rectum, and her bowels are regular, Appetite rather bad.

℞ Tinct. Lytt. ♏xv. ex Mucil. Acae. 6tis hor. Ol. Ricin. p. r. n. Emp. Lytt. sacro. Diet. Lact.

Jan. 22d.—She has had no involuntary discharge of urine since the night of the 16th ult. The medicine has not produced any symptoms either of strangury or irritation of the urinary organs. Appetite rather improved. Bowels open without castor oil. Pulse 106, soft.

℞ Tinct. Lytt. ♏xx. 6tis hor.

26th.—She has not had any recurrence of the enuresis since the last report. Her general health is improved; bowels open; her appetite better; she sleeps well, and the medicine does not produce any irritation.

Diet. Comm.

Feb. 4th.—Presented cured, having had no return of the affection. General health and appearance much improved. The menstrual discharge returned at the proper period.

* Reported by Mr. John Parsons.

REMARKS BY DR. ROOTS.

There was nothing particularly unhealthy in the appearance of this young girl, and it did appear to me that, during the day, in moving about, she had perhaps to a certain extent more command over the sphincter of the bladder than is spoken of, otherwise, when walking about the ward, if this were true, there would have been a continual dribbling away, which was not the case.

From what do I consider that this case arose? I believe it arose entirely from the irritable condition of the bladder itself, and not from the bladder being unable to allow of distension beyond a certain point, and therefore being eager to get rid of its contents: for she had no pain, no uneasiness, she had no urgent necessity to pass her water, but it came away involuntarily, either during the night, when she had no control over it, no power of exercising the will, or upon a certain exertion calculated to put the abdominal muscles in action. I considered that it arose entirely from the want of power in the sphincter of the bladder itself.

What, then, was the treatment pursued? Not quite satisfied whether the bowels were sufficiently open, she was directed to take a dose of castor oil when necessary: a blister was applied to the sacrum, and she was directed to take fifteen minims of tincture of cantharides every six hours. At first she was put upon milk diet.

In a few days after her admission she was relieved; and, continuing to improve, was, at her own request indeed, presented at the expiration of three weeks, perfectly well.

I should say that this case evidently arose from a torpor of the muscular fibres composing what is termed the sphincter of the bladder. There was some degree of torpor in the girl's system, apparently about the sexual organs. She was 16 years of age, if not more, and had only menstruated once, and that three weeks before she came into the hospital, which is certainly late; for, generally, females, particularly a full-grown girl like herself, menstruate at a somewhat earlier period.

There is another cause which sometimes does operate in producing this peculiar condition of the bladder. I have met with several instances where great debility of the sexual organs, and of the parts adjacent and closely allied to them, has been induced, more especially in females, by a habit of self-abuse. I confess that I had some doubts in my own mind whether

such might not be the cause here, by the pulse in this instance always being so quick: it was always 100, or more. I have had precisely such cases come under my own care, where these were the only symptoms complained of, and where, as a matter of course, it has been in public and not in private practice. I have been enabled to ascertain, from the confession of the females themselves, that such has been their habit.

Why did I give the tincture of cantharides? I exhibited it simply as a stimulant, calculated to act locally upon the urinary organs, and thence probably upon the nerves supplying the muscular fibres composing the sphincter of the bladder. In this instance that simple stimulant alone was sufficient, and I do believe that, under such circumstances, cantharides is one of the best remedies to which you can resort. But I have seen precisely the same condition with regard to a loss of power over the sphincter of the bladder, where stimulants alone were not sufficient, where the mere local application as near as possible of cantharides by way of vesication to the sacrum, and where cantharides and turpentine, given alternately, failed, but where, in conjunction with such stimulants, tonics were necessary, viz. some of the preparations of iron. If in this case I had not found the symptoms yield so readily as they did, I should then have thought it necessary to combine the stimulants with tonics. Perhaps, too, I should have given the stimulant in larger doses; for you may exhibit the tincture of cantharides even in a very considerable quantity, without its producing any very great irritation of the urinary organs, or on the mucous tissue of the alimentary canal. Indeed, I have seen myself as much as two drachms of tincture of cantharides taken for a dose three or four times in the twenty-four hours, without any unpleasant effects resulting from it.

I allude to this case; for though it is a simple one, yet it is one which you will not go through life without being consulted about in private practice. It is distressing enough in males, but it is exceedingly distressing in females. It is well to know that, under such circumstances, the tincture and the local application of cantharides will sometimes be sufficient to relieve all these unpleasant symptoms; and to know, also, that if there should be a degree of debility in the constitution generally, the stimulants calculated to make a local impression on the organs may not be sufficient, and that then you may attain your object by persevering still in the use of the stimulants, and combining them with tonics, because I have met with several instances where, though the one plan did not succeed alone, yet by combining the two I have accomplished my desire.—*St. Thomas's Hospital Reports*, No. IV.

A BILL

TO PROVIDE FOR THE ATTENDANCE AND REMUNERATION OF

MEDICAL WITNESSES AT CORONERS' INQUESTS.

Whereas it is expedient to provide for the attendance of medical witnesses at coroners' inquests, also remuneration for such attendance, and for the performance of post-mortem examinations at such inquests;

Be it therefore enacted by the King's most excellent Majesty, by and with the consent of the Lords spiritual and temporal, and the Commons, in this present Parliament assembled, and by the authority of the same,

That whenever, upon the summoning or holding of any Coroner's Inquest, it shall appear to the Coroner that the deceased person was attended at his death, or during his last illness, by any legally qualified medical practitioner, it shall be lawful for the Coroner to issue his order, in the form marked *A* in the schedule hereunto annexed, for the attendance of such practitioner as a witness at such inquest; and if it shall appear to the Coroner that the deceased person was not attended at or immediately before his death, by any legally qualified medical practitioner, it shall be lawful for the Coroner to issue such order for the attendance of any legally qualified medical practitioner being at the time in actual practice in or near the place where the death has happened; and it shall be lawful for the Coroner, either in his order for the attendance of the medical witness, or at any time between the issuing of such order and the termination of the inquest, to direct the performance of a post-mortem examination by the medical witness or witnesses who may be summoned to attend at any inquest.

And be it further enacted, That whenever it shall appear to any six of the jurymen sitting at any Coroner's Inquest, that the cause of death has not been satisfactorily explained by the evidence of the medical practitioner who may be examined in the first instance, such six of the jurymen are hereby authorised and empowered to name to the Coroner any other legally qualified medical practitioner or

practitioners, and to require the Coroner to issue his order, in the form hereinbefore mentioned, for the attendance of such last mentioned medical practitioner or practitioners as a witness or witnesses, and for the performance of a post-mortem examination, whether such an examination has been performed before or not, and if the Coroner, having been thereunto required, shall refuse to issue such order, he shall be deemed guilty of a misdemeanour, and shall be punishable in like manner as if the same were a misdemeanour at common law.

And be it further enacted, that when any legally qualified medical practitioner has attended upon any Coroner's Inquest, in obedience to any such order as aforesaid of the Coroner, the said practitioner shall, for such attendance, be entitled to receive such remuneration or fee as is mentioned in the table marked *B* in the schedule hereunto annexed, and the Coroner is hereby required and commanded to make, according to the form marked *C* in the schedule hereunto annexed, his order for the payment of such remuneration or fee, and such order shall be addressed and directed to the overseers of the parish in which the inquest has been held, according to the general description of the said overseers, or to any one of them. And such overseers, or any one of them, is and are hereby required and commanded to pay the sum of money mentioned in such order of the Coroner to the medical witness afore mentioned, or his messenger, out of the funds collected for the relief of the poor of the said parish.

Provided nevertheless, and be it further enacted, that no order of payment shall be given, or fee or remuneration paid, to any medical practitioner for the performance of any post-mortem examination which may be instituted without the previous direction of the Coroner.

Provided also, and be it further enacted, That when any inquest shall be holden on the body of any person who has died in any public hospital, or infirmary, or in any building or place belonging thereto, or used for the reception of the patients thereof, or who has died in any county or other lunatic asylum, or in any public infirmary or other public medical institution, whether the same be supported by endowments or by voluntary subscriptions, then, and in such case, nothing herein contained shall be construed to entitle the medical officer whose duty it may have been to attend the deceased person as such medical officer in such institution as aforesaid, to the fees or remuneration herein provided.

And be it further enacted, that where any order for the attendance of any medical practitioner as aforesaid, shall have been personally served upon such practitioner, or where any such order, not personally served, shall have been received by any medical practitioner in sufficient time for him to have obeyed such order, or where any such order has been served at the residence of any medical practitioner, and it shall appear to any six of the jurymen that such order had come to his hands in sufficient time for him to have obeyed it; then, and in every such case, it shall be lawful for the coroner, at a request made by any six of the jurymen, and the coroner is hereby required and commanded, to issue his warrant, in the form given in the schedule hereunto annexed, marked D, to any constable or other peace-officer, to bring such medical practitioner at any time and place specified in such warrant, before the coroner and the jury, for the purposes mentioned in the said order; and in every case where any medical practitioner has not obeyed such order, he shall for such neglect or disobedience forfeit the sum of sterling, upon complaint thereof made by the coroner, or any two of the jury, or the constable who served the order, before any two justices having jurisdiction either in the parish or place where the inquest under which the order issued was held, or in the parish where such medical practitioner resides, and such two justices are hereby required, upon such complaint, to proceed to the hearing and adjudication of such complaint, and, if substantiated, to enforce the said penalty by distress and sale of the offender's goods, as they are empowered to proceed by any Act of Parliament, for any other penalty or forfeiture.

SCHEDULE

A.—*Form of Summons.*

Coroner's inquest at , upon the body of . By virtue of this my order as Coroner for , you are required to appear before me and the jury at , on the day of , 18 , at o'clock, to give evidence touching the cause of death of , (and then add, when the witness is required to make or assist at a post-mortem examination), and make, or assist in making, a post-mortem examination of the body, and report thereon at the said inquest.

(Signed) , Coroner.

To

Surgeon (or M.D., as the case may be).

B.—*Table of Fees.*

1. To every legally-qualified medical practitioner for attending and giving evi-

dence under the provisions of this Act, at any Coroner's inquest whereat no post-mortem examination has been made by such practitioner, the fee or remuneration shall be *One Guinea*.

2. For the making of a post-mortem examination of the body of the deceased, and for attending to give evidence relative thereto, the fee or remuneration shall be *Two Guineas*.

C.—*Coroner's Order for the Payment of Medical Witnesses.*

By virtue of an Act of Parliament passed in session of , holden in the , entitled , I , the coroner of and for , do order you, the overseers of the parish (or township as the case may be), to pay to the sum of (*one guinea* or *two guineas*, as the case may be), being the fee (or fees) for the attendance of the said , at an inquest holden before me this day of , 18 , upon the body of about the age of , who was found dead at (or other particulars or description), and at which said inquest the jury returned a verdict of

(Signed) Coroner.

Witnessed by me , of a juryman at the said inquest.

To the Overseers, &c. &c. &c.

D.—*Warrant to Constable to enforce Attendance of Witness.*

Whereas I have been required by six of the jurymen sitting in inquisition upon the body of (with other description, as the case may be), to issue my warrant for the bringing of to give evidence before me and the jury, touching the cause of the death of the deceased person. I therefore do authorize and order you to take into your custody the said wherever he may be found, and to bring him before me and the jury at an adjourned inquest to be holden at , on the day of , 18 , when and where I shall be informed that you have the custody of the said , and, you are hereby authorized and commanded to hold him in safe keeping until the examination of the said , at the said adjourned inquest, shall have been concluded. And this warrant shall be your sufficient authority.

Signed, sealed, and delivered, in the presence of the jury, by me,

Coroner.

To , Constable for

[Should this Bill pass into a law, we shall take care to give a perfect copy of it. —Ed. Gaz.]

EASTERN MEDICAL ASSOCIATION PROJECT.

REPORT OF THE BRISTOL COUNCIL.

To the Editor of the Medical Gazette.

Sir,

As the Bath Council, and probably many of the other local Councils of the Provincial Medical and Surgical Association, have forwarded to you their resolutions respecting the proposed connexion with the Eastern Society, I beg leave to transmit a copy of the report of the Bristol Council, as a document of reference on this subject.—I have the honour to be, sir,

Your obedient servant,

Wm. Hetling.

Bristol, Aug. 1, 1836.

The members of the Bristol Council have taken into consideration the proposed connexion between the Eastern Society, and the Provincial Medical and Surgical Association, and are of opinion that it is at direct variance with the great principle of the Association, and destructive of that unity of design and operation so essential to its efficiency; and moreover, that it would tend to embarrass, without proportionably benefitting, the general arrangements of the Association.

The Council are not aware of any peculiar advantages attending a partial connexion that would not be better attained by a complete junction. It has been urged, indeed, that the Association is becoming "too numerous," and the duties consequently devolving too heavy to be discharged by our honorary and excellent secretaries. The Council cannot imagine that numbers can be regarded as an evil—every addition of a name to the list they have been accustomed to hail as an accession of strength and respectability, and indicative of the increasing prosperity of the Association.

But admitting the validity of the objection, it is quite obvious that the proposed connexion would complicate rather than simplify the affairs of the Association, rendering necessary separate books, accounts, &c.; whereas, on the other hand, were the Association so fortunate as to embrace the whole of the provinces, (by no means a problematical supposition) it is presumed that our secretaries, under the present constitution, would be found equal to such augmented duties.

Considerations of economy, and still more a regard to the maintenance of that harmony which has hitherto characterized all the proceedings of the Society, are strongly in favour of the latter arrangement. It may not have occurred even to the members of the Council, that by the

terms actually suggested, (2 3ds of the subscriptions of the Eastern Society being paid into the general treasury) the remaining 1 3d, that is, 100*l.* in every 300*l.* may be considered as virtually lost to the Association; and moreover, that confusion would be liable to arise from the introduction of two classes of members, with different rates of subscription.

Under the influence of these impressions, the Council are decidedly in favour of an absolute union, and are convinced that unless such junction be effected, the general interests of the Association will be better promoted by its remaining as heretofore, a distinct and independent Society. At the same time the Council are anxious to obtain the co-operation of so large and influential a body of practitioners; should, therefore, our Eastern brethren, upon re-consideration, be disposed to adopt the more comprehensive view of the question, and in compliance with the sentiments so generally entertained and expressed by the several local Councils, join our ranks as common members of one Association, we shall be most happy to hold out the right hand of fellowship.

Signed on behalf of the Council,

WM. HETLING.

Bristol, July 13, 1836.

COLLEGE OF SURGEONS.

LIST OF GENTLEMEN WHO RECEIVED DIPLOMAS IN JULY.

Henry Weeks, Barnstaple.
S. G. Gilbert, Blofield, Norfolk.
Charles Stevens, Oxford.
J. Page, Kirton, near Boyton.
Lewis Day, St. Neotts.
Charles L. Grant, Grantown.
E. V. Davis, Calcutta.
Thomas Jones, Cwm-Neatt, Glamorganshire.
H. H. Taylor, Seaton Sluice, Northumberland.
John D. Seale, Cardiff.
W. Dixon, Sunderland.
John Potts, Sunderland.
John Maclear, Mayle, Ireland.
Samuel Goodisson, Wexford.
W. B. Lumb, Wakefield.
L. M'Calman, Galway.
D. T. Morton, Rotherhithe.
John H. Askwith.
W. Walker, Charterhouse-square.
M. Squire, Great Yarmouth.
James Power, Ionistiogue, Kilkenny.
B. Dodsworth.
John H. Walwyn, St. Kitts, W.I.
James Johnson, London.
F. Pearce, Camelford.
P. G. Hewett, London.
A. V. Dennis, Wells, Norfolk.
G. Croizer, Albany-street, Regent's Park.
F. Theed, Peterborough.
R. Marshall, Kennington.
E. F. Broadbent, Lincoln.
R. Booth, Aurington, Lancashire.
C. Elkins, Bayswater.
J. Marshall, Greek-street, Soho.
J. L. Hobbes, Stratford-on-Avon.
F. Pritchard, Stratford-on-Avon.
Thomas Hood, London.
Joseph M. Cooke, Dublin.
Charles Vines, Reading.
John Rolland, London.
A. T. B. Atkins, Winchester.
John Vaux, Macclesfield.
W. B. Parkes, London.
James Mahaffy, E. I.
F. Crang, Tonisbury, Somerset.
John Kimmell, Leamington.
James W. Jeans, Grantham.
William H. Lewis, Cork.
James Garthside, Liverpool.
F. O. B. Lewis, Newcastle Emlyn.
John Carr, Dublin.
John T. Dolman, Cork.
F. O. Hyde, Aller, Somersetshire.
Henry B. Ormston, Co. Cork.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

July 28, 1836.

David Rees Thomas, Northampton.
George Gould, Yarmouth.
Stamp Garrard.
Michael John Doyle.
Robert Jones, Dolgelly, North Wales.
Edwd. Wm. Gray, Baron-upon-Soar, Leicestersh.
Hugh Jones Owen, Shrewsbury.
William Watkin Lloyd, Barnet, Herts.
Rice Williams, Dursley, Gloucestershire.
George Stevenson, Edinburgh.

August 4.

Samuel Goates Mason, Richmond, Yorkshire.
James Jones, Rockhampton, Gloucestershire.
Alexander McNab, London.
Henry Curling, London.
Henry Hatton, Bolton, Lancashire.
Henry French, Bungay, Suffolk.
William Hallam, Newcastle-under-Lyne.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *Aug.* 2, 1836.

Abscess	3	Hooping Cough	4
Age and Debility	24	Hydrophobia	1
Apoplexy	4	Inflammation	15
Asthma	6	Bowels & Stomach	4
Cancer	2	Brain	3
Childbirth	1	Lungs and Pleura	3
Consumption	49	Insanity	1
Convulsions	26	Liver, diseased	4
Croup	1	Measles	5
Dentition or Teething	6	Mortification	3
Dropsy	6	Paralysis	3
Dropsy on the Brain	4	Small-pox	5
Dropsy on the Chest	1	Spasms	1
Erysipelas	1	Stricture	1
Fever	7	Thrush	2
Fever, Scarlet	3	Unknown Causes	34
Gout	2		
Heart, diseased	2	Casualties	3

Decrease of Burials, as compared with the preceding week . . . 2

METEOROLOGICAL JOURNAL.

July, 1836.	THERMOMETER.		BAROMETER.	
Thursday . 28	from 50	to 77	30·00 to	29·90
Friday. . . 29	57	68	29 66	29 60
Saturday . 30	52	64	29 81	30·12
Sunday . . 31	47	68	30·26	30 39
August.				
Monday . . 1	50	68	30·10	29.95
Tuesday . 2	47	67	29 94	29 99
Wednesday 3	52	75	29 96	29·00

Wind very variable, S.E. prevailing.

Generally clear, except the 29th and 30th ult. when little rain fell.

Rain fallen, ·3125 of an inch.

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, AUGUST 13, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XLVI.

Having examined, as minutely as our time permitted, the physical characters of Cinchona barks, we now proceed to the chemical characters.

Chemistry of the Cinchona Barks.

History.—It is unnecessary to trace all the attempts that have been made to analyse the Cinchona barks. The first deserving of notice is that of Fourcroy, made on a bark which he called St. Domingo Cinchona (now termed Piton, or St. Lucia bark), and published in February 1791: it was long regarded as a model of chemical analysis. Seguin, from observing that an infusion of bark, like a solution of gelatine, was precipitated by solutions of tannic acid, subsequently came to what must, I think, be admitted a most absurd conclusion, — namely, that the active principle of Cinchona was gelatine; in consequence of which, clarified glue was gravely proposed as a substitute for barks, and its efficacy attempted to be proved by reference to cases in which it was used. His paper was read at the French Institute, the 28th of December, 1802. In the following year (1803), the late Dr. Duncan, Jun., published some experiments, proving that the active principle of Cinchona was not gelatine, but a peculiar substance, which he proposed to term *Cinchonin.* In 1806 appeared the experiments of Vauquelin, made on seventeen species of Cinchona barks. Dr. Gomes, a Portuguese physician, stated, in 1810, that he had separated the active principle of bark, and had obtained it in a crystalline form. In 1820 appeared the celebrated analysis of Pelletier and Caventou, announcing the existence of two alkaline substances in bark, namely, *Quinia* and *Cinchonia.* In every point of view this must be regarded as by far the most valuable and useful memoir yet published on the chemistry of Cinchona. In 1829, Pelletier and Coriol discovered a third alkali in the Cusco bark, to which they gave the name of *Aricina.*

The constituents of these barks, which, from being peculiar or remarkable, deserve separate notice, are *acid* or *basic.* The acids are kinic, kinovic, and tannic; the bases, quinia, cinchonia, and aricina. That the former preponderate over the latter, is shown by the infusion of bark reddening litmus.

Kinic or *Cinchonic Acid.*

History.—Deschamps first obtained from Cinchona bark a saline matter, which Vauquelin, in the year 1806, stated to be composed of lime, and a peculiar acid, which he named *Kinic*, but which would be more correctly designated by the term *Cinchonic acid.* Sometimes it is called *Quinic acid.*

Native state.—It has been found in several of the Cinchona barks; and by Berzelius in the alburnum of the Abies communis. This chemist thinks it is a constituent of the alburnum of most trees.

Preparation.—After the rough quinia has been thrown down by lime from the infusion of bark in the preparation of the sulphate of quinia, the evaporation of the clear liquor yields kinate of lime. The lime may be separated from a solution of this salt by adding oxalic acid; or if we add the subacetate of lead, the kinate of lime is decomposed, acetate of lime is

formed in solution, while subkinate of lead precipitates: the latter may be decomposed by sulphuretted hydrogen, which throws down the lead, while the kinic acid is left in solution.

Properties.—As met with in commerce, kinic acid is in the form of a thick syrupy liquid, which may be crystallized, though with difficulty. It is soluble both in water and alcohol, and has an acid taste. When heated in closed vessels, it is decomposed, —*pyrokinic* acid is formed,—and an odour of caromel evolved (like that of sugar or tartaric acid, when heated). Sulphuric acid dissolves it, acquires a green tint, and by the aid of heat carbonizes it. Nitric acid, in small quantity, converts it into a substance analogous to pyrokinic acid: a larger quantity forms with it oxalic acid.

Composition.—It is composed of carbon, hydrogen, and oxygen

Liebig.

15 atoms carbon, or (15×6)	90
12 atoms hydrogen, or	12
12 atoms oxygen, or (12×8)	96
	198

Baup.

15 atoms carbon, or (15×6)	90
10 atoms hydrogen, or	10
10 atoms oxygen, or (10×8)	80
	180

Characteristics.—It does not precipitate the calcareous salts, nitrate of silver, or the neutral acetate of lead; but it precipitates the subacetate of lead. In the solubility of its combinations it is analogous to acetic acid, from which it is distinguished by its crystallizability, and its not volatilizing unchanged. As other characteristics of it, the action of heat and of sulphuric acid, already mentioned, may be noticed.

Kinates or *Cinchonates.*—These salts are analogous to the acetates in their solubility in water: they are insoluble in pure alcohol. When dried, they have a gummy appearance; and when decomposed by heat, evolve an odour of caromel.

Pyrokinic or *pyrocinchonic acid.*—I have already mentioned how this acid (which was discovered by Pelletier and Caventou), is obtained. It may be procured in a crystallized state by dissolving it in acidulated water, and evaporating the solution. Its characters are as follows:—It does not precipitate the alkalies, lime, or barytes; it precipitates the salts of lead and silver; and lastly, it gives a beautiful green colour to the salts of iron.

Kinovic Acid.

This acid was discovered, as I have already stated, by Pelletier, in the bark called Cinchona nova, and is but little known. It is said to be analogous to the fatty acids (stearic acid, for example), and to precipitate solutions of sugar of lead, corrosive sublimate, and the salts of Cinchonia.

Tannic Acid.

Most, if not all, true Cinchona barks, contain tannic acid. This is readily shown by the green colour produced on the addition of the persalts of iron to an infusion of bark. Moreover, gelatine occasions a precipitate of the tannate of gelatine. Lastly, the property which the infusion of bark has of precipitating a solution of tartar emetic, depends on the tannic acid, which unites with the oxide of antimony, and produces a tannate.

It is presumed that the tannic acid is, in part at least, combined with the vegetable alkalies; for if they were in union with kinic acid only, they would be more easily extracted by water than they really are.

Red Cinchonic.

In the analyses of Cinchona barks, one of the constituents of these substances is described as a *red colouring matter, very slightly soluble in water:* it is the red cinchonic of Reuss. It is now usually regarded as tannic acid, somewhat altered in its properties. Berzelius regards it as a compound of tannic acid and apothema (the oxidized extractive of most chemists).

Cinchonia.

History and synonymes.—The existence of this substance (which has been termed Cinchonine, Cinchonia, or Cinchonium), was inferred by Dr. Duncan, Jun., in 1803, and proved by Dr. Gomes, in 1810.

Native state.—Hitherto it has been found in the bark of some species of Cinchona only.

Preparation.—I believe it is never procured purposely, since, in the manufacture of the sulphate of quinia, a quantity of sulphate of cinchonia is also obtained. The latter substance is found in the mother water from which the sulphate of quinia has crystallized, and may be obtained by allowing the liquid to evaporate spontaneously, after all the sulphate of quinia has been separated by repeated crystallizations. From a solution of the sulphate of cinchonia we may readily obtain cinchonia, by the addition of an alkali (ammonia, for example).

Another mode of separating the cinchonia is the following:—Boil the mother water with a solution of common salt; a brown precipitate is formed, from which a clear, almost colourless, liquor is to be decanted and filtered. Add to

this ammonia, by which a precipitate is formed, consisting of cinchonia and phosphate of lime (this last substance comes from the ivory-black used in decolorizing the acid solution of sulphate of quinia). Wash this precipitate at first with a little water, then with boiling alcohol, which dissolves the cinchonia and leaves the phosphate. In cooling, the spirit deposits the cinchonia in a crystalline form.

Properties.—Cinchona is a white, crystalline, odourless solid, of a bitter taste. Its crystalline form is a four-sided prism, terminated by two oblique facets. It contains no water of crystallization, and, therefore, when heated, loses nothing in weight: when the heat is sufficient to decompose it, it fuses, furnishes a crystalline sublimate (cinchonia?), gives out ammonia, and leaves a carbonaceous residuum. It is nearly insoluble in cold, but is slightly soluble in boiling water; the hot solution becoming opaque as it cools. It is soluble in alcohol, particularly when hot: from the warm solution crystals are obtained by cooling. Its solubility in alcohol is, however, less than that of quinia. It is soluble in æther, but much less so than in alcohol. It dissolves, though slightly, in fixed oils, somewhat more so in oil of turpentine, and readily in dilute acids.

Characteristics.—That it is an organic substance is shown by the action of heat on it; and when burnt with nitrate of ammonia, it leaves no mineral, earthy, or alkaline residuum. Its alkaline nature is proved by its action on vegetable colours; by its combining with acids to form neutral salts; and, lastly, by its action on iodine; for when this substance is mixed with cinchonia and water, the iodine is changed into iodic and hydriodic acids, which combine with the cinchonia and form two salts, which remain in solution while the liquid is hot, but deposit in the form of a white powder as it cools; and by the addition of sulphuric acid to this deposit, free iodine is immediately evolved. From morphia, brucia, and strychnia, this alkaline substance is distinguished by its not colouring nitric acid. When a solution of the nitrate of cinchonia is very concentrated, a portion of the salt separates into globules of an oleaginous form: if these globules be covered with water, they are converted, after a few days, into a group of very regular crystals. This character distinguishes cinchonia from other organic alkalies, quinia excepted. Solutions of soluble cinchonic salts are precipitated by ammonia, ferrocyanuret of potash, tincture of galls, oxalate of ammonia, and tartrate of potash. Other characters tending to recognize cinchonia, are, its solubility in different liquids, the physical and chemical properties of its salts, and its effects. The distinctions between cinchonia and quinia will be noticed hereafter.

Composition.—Cinchonia consists of carbon, hydrogen, nitrogen, and oxygen, in the following proportions:—

20 atoms carbon	120
12 atoms hydrogen	12
1 atom nitrogen	14
1 atom oxygen	8
	154

It is probable, however, that the numbers of the atoms ought to be doubled: the atomic weight of cinchonia will then be twice that now mentioned; the salts now called neutral will then be termed bisalts, and the subsalts will be named neutral salts.

Salts of cinchonia.—Some of the salts of cinchonia are not very soluble in cold water. This is the case with the *Gallate*, *Tartrate*, *Oxalate*, and *Ferrocyanate*. Whereas the *Sulphates*, *Nitrate*, *Hydrochlorate*, *Chlorate*, *Iodate*, *Acetate*, *Phosphate*, and *Arseniate*, may be termed soluble salts. A remarkable trait belonging to the nitrate I have already mentioned, and the only class of salts which I shall farther notice is the sulphates.

1. *Monosulphate or neutral sulphate of cinchonia.*—The primary form of the crystals of this salt is the doubly oblique prism. It is unalterable in the air at ordinary temperatures, but when gently heated, effloresces. It is soluble in water and alcohol, but insoluble in æther. It is composed of

1 atom cinchonia	154
1 atom sulphuric acid	40
4 atoms water.... (4×9) =	36
	230

2. *Disulphate or subsulphate of cinchonia.*—This is also a crystalline salt, somewhat less soluble in water and alcohol than the monosulphate. It consists of

2 atoms cinchonia ..(154×2) =	308
1 atom sulphuric acid	40
1 atom water ...... (2×9) =	18
	366

Quinia.

History.—This alkali (also termed Quinine, or Quininum) was discovered by Pelletier and Caventou, in 1820.

Native state.—Like cinchonia, it has hitherto been found in the barks of some species of Cinchona only.

Preparation.—The simplest, readiest, and cheapest mode of procuring it, is by precipitating a solution of the sulphate of quinia by ammonia, and collecting and drying the precipitate.

Properties.—Quinia thus obtained, is, in fact, a hydrate of quinia. In this state it

is a white, friable, very bitter solid, which crystallizes with great difficulty. Indeed, it was at one time thought to be absolutely incrystallizable; but it has been found that it may be obtained in crystals, which, like the precipitated quinia, are hydrated. When either of these hydrates are heated, it fuses, and, at a temperature of about 300°, gives out its combined water. When cold, this anhydrous quinia is yellow, translucent, and friable, something like resin.

Quinia is slightly soluble in water; requiring two hundred times its weight of boiling water to dissolve it. It is more soluble in alcohol than cinchonia; and hence one method of separating these alkalies. It is also more soluble in æther than cinchonia is. It is soluble in the volatile oils and naphtha; and advantage has been proposed to be taken of this fact in the manufacture of sulphate of quinia, as will be presently mentioned.

Characters.—Quinia agrees with cinchonia in most of its characters. The following are their distinctions:—

		Cinchonia.	Quinia.
Form		Crystalline.	Amorphous (in the anhydrous state). The hydrate is crystallizable, but with difficulty.
Taste		Bitter.	Very bitter.
Fusibility		Infusible when quite dry; when moist fuses, but at the same time decomposes.	Fusible.
Composition		One atom contains only one atom of oxygen.	One atom contains two atoms of oxygen.
Combining proportion, or atomic weight		154	162
Solubility	in water	Dissolves in 2500 times its weight of boiling water.	Dissolves in 200 times its weight of boiling water.
Solubility	in alcohol	Soluble; solution readily crystallizes	More soluble than cinchonia; solution with difficulty crystallizes.
Solubility	in æther	Sparingly soluble; solution readily crystallizes.	Very soluble; solution crystallizes with difficulty.
Salts: Subsulphate	form and aspect	Four-sided prisms.	Pearly silky needles.
Salts: Subsulphate	soluble	Soluble in water and alcohol.	Less soluble in water and alcohol.
Salts: Sulphate		Soluble in water and alcohol.	Less soluble in water and alcohol.
Salts: Muriate		Crystallizes in needles.	Crystallizes in silky or pearly tufts.
Salts: Phosphate		Hardly crystallizable; aspect gummy.	Crystallizes in pearly needles.
Salts: Arseniate		Hardly crystallizable.	Crystallizes in prismatic needles.
Salts: Acetate		Very soluble; crystals small and granular.	Less soluble; crystals in silky tufts, grouped in stars, &c.

Composition.—It consists, according to Pelletier and Dumas, and Liebig, of—

20 atoms carbon	20×6	120
12 atoms hydrogen		12
1 atom nitrogen		14
2 atoms oxygen	2×8	16
		162

Salts.—The *oxalate*, *tartrate*, *gallate*, *tannate*, and *ferrocyanate*, are not very soluble in cold water. The *nitrate* possesses, in the form of a concentrated solution, the same property of assuming an oleaginous form as the nitrate of cinchonia. The only salts that I think it necessary to notice individually, are the sulphates.

Sulphates of quinia.—Two sulphates of quinia are known, one of which may be termed the *neutral sulphate*, the other the *subsulphate or disulphate.*

1. *Subsulphate or disulphate of quinia:*

Sulphate of quinia of commerce.—The immense production and consumption of this salt gives a high importance to it. Dumas says, about 120,000 ounces are annually made at Paris.

Manufacture.—The following is the method of manufacturing the sulphate of quinia of commerce, as usually practised in this country.

Boil grossly pulverised yellow bark in water acidulated with sulphuric (or muriatic) acid. On the large scale the vessel used is a vat, and the boiling is effected by steam, a pipe from a steam boiler opening into the liquid. The solution is run off and filtered, and the residuum boiled in a fresh quantity of acidulated water. Some repeat the process a third time. By this means all the quinia is extracted from the bark, and exists in the liquid, in the form of an acid sulphate.

Finely powdered slacked lime is to be added to the filtered liquid when cold, until it becomes sensibly alkaline, and acquires a dark colour. A sediment, composed of quinia, lime, sulphate of lime, and colouring with other matters, falls down. This is to be collected and placed on a cloth to drain, and then submitted to graduated pressure (usually in a hydraulic press), by which means a cake is procured, which, when quite dry, is to be reduced to powder.

This powder is digested in rectified spirit of wine, which dissolves the quinia, and some colouring matter, but leaves behind the sulphate of lime. The filtered spirituous solution is to be distilled until the residuum in the retort is a brown viscous mass, consisting of quinia with some foreign matters, and when solidified has a resinous appearance.

This rough quinia is mixed with dilute sulphuric acid, and the liquor boiled with ivory black, to destroy the colour. The filtered liquor on cooling deposits a mass of crystals of the sulphate of quinia, but of a yellowish brown colour. They are placed to drain on a cloth, and afterwards submitted to pressure. To purify them, they are to be dissolved in acidulated water, and again crystallised. Some manufacturers do not employ ivory black until the sulphate has been crystallised once.

Remarks on the process.—Some think it preferable to convert the alcoholic solution of quinia into a sulphate, before distillation, in order to separate some fatty matter. It is then to be distilled, and purified as before.

English manufacturers cannot fairly compete with foreigners in the manufacture of this salt, in consequence of the enormous duty on spirit; and hence the greater part of the sulphate consumed is imported from Paris or Strasbourg*. Various substitutes for spirit of wine have been tried: some use pyroxilic spirit (commonly called wood naphtha, or pyroligneous æther). Pelletier has taken out a patent for the employment of a volatile oil, which may be either oil of turpentine, or the oil sold in the shops under the name of oil of tar, or lamp naphtha. The dried cake of quinia and lime, obtained in the usual manner, is to be digested in oil of turpentine, which dissolves the quinia. This oleaginous solution is then to be agitated with water acidulated with sulphuric acid, by which a sulphate of quinia is obtained. By repose, the oil rises to the top, and after removal may be employed again, while the solution of the sulphate is to be evaporated as usual. Hitherto, however, this process has not succeeded, partly because the turpentine does not extract more than $\frac{13}{20}$ths of the quinia present. If any attempts, however, should be made to procure the sulphate in America, it is possible that some modification of this process would be the best.

Quantity of sulphate obtained from yellow bark.—As it is interesting to know the quantity of sulphate of quinia which has been obtained from yellow bark, I have made inquiries among some manufacturers in this country, who inform me one ounce of sulphate is considered a very good product from 2lbs. of bark; and I have heard of as much as one ounce being obtained from $1\frac{3}{4}$ lbs of bark, but have never met with a manufacturer who himself had procured this quantity, though several had heard of others obtaining it.

Pelletier states that in 1827 he consumed 2000 quintals of bark in the manufacture of 90,000 ounces (French) of Sulphate. This is about 3 drachms of sulphate to each pound of bark. Dumas, however, states that nearly 4 drachms may be obtained.

Properties.—It occurs in small fibrous crystals, which have a pearly aspect, and a flexibility like amianthus. Exposed to the air, they effloresce slightly. When heated they become luminous; friction promotes this phosphorescence; at a higher temperature they melt, and form a mass like wax, which at a still higher heat takes fire and burns, leaving no residuum. It is very slightly soluble only in cold water, but readily dissolves in water acidulated by a few drops of sulphuric acid. It readily dissolves in boiling water, but separates as the water cools. A remarka-

* Since the above remarks were made, the Chancellor of the Exchequer has announced his intention of taxing all the vegetable alkalies and their salts, brought into this country. It is reported that this has been done at the instigation of certain chemical manufacturers; and therefore is intended, I presume, to act as a protecting duty. A much more satisfactory proceeding would be, to allow a drawback on the spirit consumed in chemical manufactures.

ble property of this salt is to give a blue tinge to water. It readily dissolves in alcohol, but is slightly soluble only in æther.

Composition. — This salt consists of 1 atom of sulphuric acid and 2 atoms of quinia, with water of crystallization. The following is the composition according to Dumas:—

Crystallised Salt.		Efflorescent Salt.	
Quinia.... 2 atoms 162×2..	324	2 atoms......	324
Sulphuric acid	40	1 atom	40
Water .... 8 atoms 8×9	72	2 atoms......	18
	436		382

According to others, however, the crystallised salt contains 10 atoms of water.

Adulteration.—Sulphate of quinia is said to be sometimes adulterated: my own experience, however, leads me to think this occurrence rare, having never met with an adulterated specimen. The substances said to be employed for this purpose are earthy salts (as the sulphates of lime and magnesia, and acetate of lime), ammoniacal salts, fatty matters, sugar, gum, and starch. They are thus recognised: by digesting the sulphate of quinia in alcohol, this salt is dissolved, leaving any earthy or alkaline sulphate, or gum, or starch, that may be present, undissolved. By combustion the earthy salts may be readily recognised. If the sulphate be digested in dilute sulphuric acid, any fatty matters present will be left undissolved. There are several methods of detecting sugar; the following is one: add carbonate of potash to a solution of the suspected sulphate; the quinia precipitates, and sulphate of potash remains in solution. The sugar may now be detected in the liquid by its taste, and may be separated from the sulphate of potash by evaporating the liquid to dryness, and digesting in alcohol, which dissolves the sugar and leaves the sulphate. Ammoniacal salts are detected by the ammoniacal odour evolved by adding caustic potash to the suspected sulphate.

2. *Neutral sulphate of quinia.*—This salt is readily formed, by adding sulphuric acid to the last mentioned salt. It is sometimes formed in the manufacture of the commercial sulphate (the subsulphate), and remains, on account of its great solubility, in the mother water, mixed with the sulphate of cinchonia. To convert it into the sub or commercial sulphate, add some ivory black, the phosphate of lime of which will saturate the excess of acid, and form sulphate of lime.

Properties. — This salt crystallizes in square prisms. It reddens litmus, but is not acid to the taste. It is much more soluble in water than the subsulphate.

Composition. — It consists, according to Dumas, of—

1 atom quinia	162
1 atom sulphuric acid..........	40
8 atoms water, 8 × 9..........	72
	274

Aricina.

History.—This alkali was discovered in 1829, by Pelletier and Coriol, in the bark termed Arica or Cusco bark, already described. It has been termed by some *cusco-cinchonia.*

Preparation.—It is obtained from Cusco bark by the same process that quinia is procured from Yellow bark.

Properties.—It is a white crystallizable substance, analogous to cinchonia in many of its properties, but distinguished by its acquiring a green tint by the action of nitric acid, and by a boiling saturated solution of the sulphate of aricina forming, as it cools, a tremulous jelly, which by desiccation becomes horny.

Composition.—It consists of—

20 atoms carbon, 20 × 6	120
12 atoms hydrogen	12
1 atom nitrogen	14
3 atoms of oxygen, 3 × 8	24
	170

General Remarks on the Cinchona Alkalies.

The great analogy between the cinchona alkalies in their physical and chemical properties, and physiological effects, would lead us to suspect analogy in composition. Now we find that they differ from each other merely in the quantity of oxygen they contain, and, therefore, we may assume that they are oxides of some compound base. In that case the base (which may be called *quinogen*) will have the following composition:—

20 atoms carbon, 20 × 6	120
12 atoms hydrogen	12
1 atom nitrogen..............	14
1 atom *quinogen*	146

And the three alkalies will stand thus:

	Quinogen.	Oxygen.
1. Monoxide of quinogen (*cinchonia*) ..	1 atom = 146	1 atom = 8
2. Deutoxide of quinogen (*quinia*)	1 atom = 146	2 atoms = 16
3. Tritoxide of quinogen (*aricina*)	1 atom = 146	3 atoms = 24

Chemical Tests of the Goodness of Cinchona Barks.

The essential tonic principles of Cinchona barks are the Cinchona alkalies; but the tannic acid is an important active principle, since on it depends the astringent and part of the simple tonic effect. "There exists a law in Sweden," says Berzelius, "in virtue of which every Cinchona bark imported into the country is tested by the infusion of galls, the persulphate of iron, a solution of gelatine, and tartar emetic; and it is proved by the experience of more than sixteen years, that the most efficacious Cinchona bark is that which precipitates the most strongly a solution of gelatine and tartar emetic; in other words, that which contains the most tannin."

1. *Tests for the Cinchona alkalies.*—The best test for quinia and cinchonia is the *infusion of galls.* That bark, therefore, which occasions the most copious precipitate with this test, is the richest in these alkalies.

2. *Tests for tannic acid.*—These are, a *solution of gelatine,* which occasions a precipitate of the tannate of gelatine; a solution of the *persulphate of iron,* which produces a green precipitate of the tannate of iron; and, lastly, a solution of *tartar emetic,* which throws down a dirty white tannate of antimony.

3. *Tests for the calcareous salts.*—If oxalate of ammonia be added to an infusion of any of the varieties of Cinchona, a white precipitate of the oxalate of lime is produced, shewing that some calcareous salt (namely, the kinate) is in solution. The quantity of lime, however, is very unequal in different barks; but it has been asserted that it is proportionate to that of the alkalies; and hence carbonate of potash has been proposed as an indirect test of the goodness of bark: the larger the precipitate of carbonate of lime it produces, the greater is the quantity of Cinchona alkalies presumed to be present. I have already mentioned that an infusion of Yellow bark contains so much lime in solution, that a solution of sulphate of soda occasions a white precipitate of the sulphate of lime. The same test, however, added to an infusion of Pale bark, does not give rise to any precipitate, since the sulphate of lime formed is not larger in quantity than can be contained in solution. A drug-broker with whom I am acquainted relies on this test, as a means of determining the value of Yellow barks, in reference to the quantity of sulphate of quinia they are capable of yielding.

Physiological effects of Cinchona bark.—(*a.*) *On dead animal matter.*—It appears that Cinchona bark is antiseptic—that is, it checks the putrefactive process when applied to dead animal matter.

Dr. Adair Crawford has made numerous experiments on the effects of Cinchona bark and other tonics, on dead animal substances, and has inferred that the constitutional effects of these substances depend on their chemical influence. Thus he supposes Cinchona bark has the power of strengthening the intestines of animals, because portions of the intestines of kittens which had been immersed in a thick mixture of Cinchona bark and water, required a greater weight to break them than those immersed in water merely, in the ratio of 25·5 to 20·7. He found, moreover, that the same effect was produced on the blood-vessels and nerves, but an opposite effect on the skin, the cohesion of which it diminished in the ratio of from 24·5 to 7·9. Furthermore, he found that this unequal effect on the different tissues was not produced by all tonic substances. Gentian and Chamomiles agreed with Cinchona in increasing the cohesion of the stomach and intestines, and in diminishing that of the skin, though the ratios were not the same. Galls, however, increased the cohesion of the skin, as well as that of the stomach and intestines. From these experiments, therefore, Dr. Crawford inferred Cinchona to have a strengthening effect on the alimentary canal, and on the vascular and nervous systems, but a debilitating effect on the skin; and he endeavoured to account for the beneficial influence of Cinchona in intermittents on this theory. But I may remark, that even admitting the effects produced on the animal tissues by Cinchona always to be those he states, the inferences he has attempted to draw from them are unwarrantable, since he totally forgets or overlooks the difference between a dead and a living tissue.

(*b.*) *On animals generally.*—Dr. Freind states that an ounce and a half of a strong decoction of bark injected into the jugular vein of a dog, caused in 15 minutes strong palpitations of the heart, and frequent

spasms. Half an ounce more being injected, brought on tetanus and death. The blood was found after death liquid, the lungs red and turgid; the right ventricle was distended with blood, the left contained hardly any. Rauschenbusch has also made experiments with Cinchona bark. In animals to whom he had given it for some days, he found the stomach and alimentary canal contracted, and the coats thickened, but no traces of inflammation. The heart was firmer, the lungs covered with red spots, the liver yellowish, the bile watery and greenish. When the blood was exposed to the air, it remained dark coloured for a longer time than usual, was less coagulable, and the serum separated more slowly: it appeared like that drawn in inflammatory cases. The pulse was stronger and fuller, the animal heat increased, and when the bark had been used for a long period, the muscles were pale, and their energy enfeebled.

(*c.*) *On man.*—The *local action* of Cinchona bark is astringent, but varying in different barks. As it depends principally on the tannic acid, chemistry will enable us to determine the most astringent bark, which will, of course, be that which affects gelatine and sulphate of iron most powerfully. In these respects the Yellow or Calisaya bark is pre-eminent. The *remote effects* of Cinchona, like those of other vegetable tonics, vary according as the system is in a healthy, debilitated, or excited condition. Altogether they constitute what is termed the tonic operation, but which is more easily understood than defined. If a man in a state of perfect health take the usual dose of bark, no obvious effects are produced,—or perhaps a little thirst and a temporary excitement of appetite may be brought on. If the dose be increased until some obvious constitutional effect is observed, the alimentary canal becomes disordered (indicated by the nausea, vomiting, loss of appetite, thirst, and constipation, or even purging); a febrile state of the system is set up (manifested by the excitement of the vascular system and dry tongue), and the cerebro-spinal system becomes disordered, as is shewn by the throbbing headache, and giddiness. These symptoms indicate a stimulant operation, which is still more manifest when the bark is given to a person suffering with gastro-enteritic irritation, accompanied with fever. All the morbid phenomena are exasperated, the febrile disorder is increased, and symptoms of gastritis come on. None of the effects now enumerated include those to which the term tonic is properly applicable. We look for those in patients suffering from debility, without symptoms of local irritation. In such we find Cinchona improves the appetite, promotes the digestive functions, and increases the strength of the pulse. Under its use the muscular system acquires more power, and the individual is capable of making greater exertion, both mental and bodily, than before; the tissues acquire more firmness to the touch, and lose their previous flabbiness: moreover, it has been asserted that the quality of the blood improves.

Physiological effects of the Cinchona alkalies: (*a.*) *On animals.*—As soon as Pelletier had discovered the alkalies in bark, he sent some of them to Magendie for trial, who soon determined they were neither poisonous when taken alone, nor in the form of salt; and he found that ten grains of the sulphate or acetate of these bases might be injected into the veins of a dog without any ill effect. Härtl found that three grains of quinia applied to a wound in a rabbit occasioned no ill effects.

(*b.*) *On man.*—Magendie states that Caventou, in his experiments, was often obliged to taste liquids charged with these alkalies, and that he experienced therefrom a general excitement, analogous to that caused by coffee. From the experiments of Duval and Beraudi on themselves, and the observations of others, it appears that large doses (as from ten to twenty or more grains of the sulphate of quinia) give rise to three classes of effects, namely — 1st, gastro-enteritic irritation, marked by pain and heat in the gastric region, nausea, gripings, and purging, sometimes followed by constipation; (occasionally ptyalism is present); 2dly, excitement of the vascular system, manifested by increased frequency and fulness of pulse, and increased frequency of respiration; 3dly, disorder of the cerebral faculties, indicated by headache, giddiness, contracted or sometimes dilated pupils, inability to hold a pen, somnolency, and stupor. Magendie remarks that he has known large doses of the alkaline sulphates cause agitation and strong cerebral excitement.

Difference in the operation of the Cinchona alkalies.—We know so little of aricina, that our comparison of the Cinchona alkalies must be confined to quinia and cinchonia. When we take into consideration their analogy of composition and of chemical properties, we are led to suspect analogy of physiological effects. When they were in the first instance submitted to examination, Cinchonia and its salts were thought, principally on the evidence of Chomel, to be much inferior in activity to quinia and its salts. But the subsequent experiments of Dufour, Petroz, Potier, Bally, Nieuwenhuiss, Mariani, Bleynie, and others, have proved that the sulphates of these alkalies may be sub-

stituted for each other. Nay, Bally gives the preference to the sulphate of Cinchonia, on the ground that it is less irritating than the sulphate of quinia. That Cinchonia is as active as quinia, might have been anticipated, *à priori*, when we recollect that those barks in which Cinchonia is the predominant principle have been celebrated as therapeutic agents. This fact of the equal value of Cinchonia and its salts, may turn out of some importance in a commercial point of view, since, in the event of the yellow bark failing, other kinds of bark which yield Cinchonia might be equally useful. Practitioners, however, have been so long accustomed to the use of the sulphate of quinia, that as long as this can be procured, some difficulty will be experienced in the introduction into practice of the sulphate of Cinchonia.

Comparison of the Cinchona alkalies with their salts.—Some of the salts of the Cinchona alkalies being more soluble than their bases, it has been inferred they are consequently more active. But it has been asserted by Nieuenhuiss, Mariani, Bleynie, and others, that the bases are equally active, and may be substituted for the salts with advantage; acid drinks being given to favour their solution in the stomach.

Comparison of the Cinchona barks with their alkalies.—It is asserted that the Cinchona alkalies possess the medical properties of the barks, and may be substituted for them on all occasions; but I do not admit either of these assertions; for, in the first place, the alkalies are deficient in the aroma which exists in the barks, and which assists them to sit easily on the stomach; and it is to this circumstance that I am disposed to refer a fact which I have observed, that sulphate of quinia will sometimes irritate the stomach, occasion nausea and pain, and give rise to febrile symptoms, while the infusion of bark is retained without the least uneasiness. Moreover, we must not overlook the tannic acid, which confers an astringent property. So that while we admit that the essential tonic operation of the barks depends on the alkalies they contain, yet the latter are not always equally efficacious. In some cases, however, they are of great advantage, since they enable us to obtain, in a small volume, the tonic operation of a large quantity of bark.

Uses.—(*a.*) *Historical notice.*—Whether the Spaniards learned the remedial uses of Cinchona bark from the Indians or not, seems doubtful. Geoffroy says that the latter were acquainted with this medicine long prior to the arrival of Columbus, but from the implacable hatred which they conceived against the Spaniards, they kept it secret for many years, until, in fact, an Indian, grateful for some favours received from the governor of Loxa, imparted to him the secret of this valuable specific. Humboldt, however, disbelieves these statements; for in Loxa and other parts far around, he found the natives ranked Cinchona among poisons, and were totally unacquainted with its uses. "In Malacatis only," says he, "where many bark-peelers live, they begin to put confidence in the Cinchona bark." The traditions, therefore, of the supposed discovery of the remedy by an Indian being cured of an ague by drinking at a pool into which some Cinchona trees had fallen, as well as the more improbable story, told by Condamine, of the Indians observing lions ill with ague eating Cinchona bark, must be fabulous The assertion, says Humboldt, that the great American lion (*Felis concolor*) was subject to fever is as bold as that made by the inhabitants of the pestilential valley, Gualla Bamba, near Quito, that even the vultures (*Vultur aura*) in their neighbourhood were subject to that disorder. Moreover, in the Cinchona forests lions are not found, though the puma (*Felis andicola* of Humboldt, the *petit lion du Volcane de Pichincha* of Condamine) has been met 2500 toises (15,000 feet) above the level of the sea.

Humboldt tells us of an old tradition current in Loxa, that the Jesuits having accidentally discovered the bitterness of the bark, tried an infusion in tertian ague, and in this way became acquainted with its valuable properties. This he thinks a much less improbable tradition than that which ascribes the discovery to the Indians.

The period when bark was first introduced in Europe is usually stated to be 1640; but Sebastian Badus gives an extract from a letter of a Spanish physician, D. Joseph Villerobel, from which it appears that it was imported into Spain in 1632, though no trial was made of it until 1639.

The statement of Condamine that the Countess of Chinchon, wife of the Viceroy of Peru, brought some bark to Europe on her return from South America, in 1639, is not improbable; and doubtless from her this medicine derived the name it now bears.

(*b.*) *Therapeutical action.* — The success which has followed the employment of Cinchona bark in certain diseases, has led to the use of terms expressive of a supposed specific curative power possessed by this remedy. As instances of such terms, I may quote *stomachic*, *febrifuge*, *antiperiodic*, *antiseptic*, *nervine*, and *antiscorbutic*. In many cases we are enabled to refer the therapeutic action of a medicine to its known physiological effect. Thus when a purgative

relieves some cerebral disorder, we ascribe the benefit received to the irritant and evacuant effect of the remedy, and no one pretends that the medicine has any specific influence over the disorder. The more intimately we become acquainted with the pathology of disease, and the operation of medicines, the less evidence have we of the specific influence of particular medicines over particular diseases. Some diseases, however, are exceedingly obscure; their seat or nature, and the condition of system under which they occur, or the cause of their occurrence, being little known. There are also many medicines the action of which is imperfectly understood, but which evidently exercise a most important, though to us quite inexplicable, influence over the system. Now it sometimes happens that imperfectly known diseases are most remarkably influenced by remedies the agency of which we cannot comprehend: in other words, we can trace no known relation between the physiological effects of the remedy and its therapeutical influence. This incomprehensible relationship exists between the effects of arsenic and the disease termed lepra; between the Cinchona bark and ague. But though this connexion is to us mysterious (for I do not admit the various hypotheses which have been formed to account for it), we are not to conclude that any more intimate connexion exists between the remedy and the disease than in other better understood instances.

I have premised these remarks in order that you may the better comprehend the actual condition in which we at present stand with reference to the influence of Cinchona over certain diseases, particularly those termed periodical or intermittent; that you may not hastily infer a specific influence or relation between the remedy and the disease, merely because you are unable to explain their connexion so readily as you can that of other medicines with other diseases.

(c.) *Local uses.*—On account of the tannic acid contained in bark, we use the latter sometimes as an astringent, at other times as a chemical agent. Thus astringent gargles of the infusion or decoction of bark have been used in relaxed sore throats, and in chronic ulceration of the mouth. As a chemical agent, decoction of Yellow bark has been recommended in cases of poisoning by tartar emetic; but in speaking of the latter substance, I have mentioned my reasons for disbelieving its asserted efficacy, for I have repeatedly seen one or two grains of tartar emetic dissolved in decoction of bark, cause vomiting. The same remark is made by Laennec.

(d.) *Remote uses.*—Let us examine, in the first place, the use of Cinchona bark in *periodical diseases.* The system is subject to several diseases which assume a periodical form; that is, they appear and disappear at regular intervals. The pathology of these affections is involved in great obscurity, and we are unacquainted with the causes of their periodicity. Those cases in which the patients appear to be quite well during the interval are called *intermittents*; whereas the term *remittent* is applied when the second paroxysm makes its appearance before the first has wholly subsided. One of the most curious circumstances connected with these diseases is the mode by which they are sometimes put a stop to. It is well known that sudden or strong impressions, whether bodily or mental, made in the interval of intermittent fever, will sometimes prevent the occurrence of the succeeding paroxysm; and occasionally from that time all morbid phenomena disappear. In remittent fever, on the other hand, the same impressions are much less certain of success, and sometimes even exasperate the symptoms. The means which have at different times had the effect of preventing the occurrence of the paroxysms are numerous, and even opposite. Of mental impressions which have succeeded, I may mention terror: of bodily impressions, I may refer to alcohol, opium, vegetable tonics (especially Cinchona), arsenic, and alum. The vegetable tonics and arsenic, have, however, more frequently succeeded than the others, and therefore are usually resorted to as remedial agents. It was at one time supposed, that, in order to be useful, they ought to be administered during the interval; for if they were exhibited during the paroxysm, they prevented its subsidence. This is certainly not true with regard to arsenic, and I believe it to be fallacious with respect to Cinchona; for Morton, Clarke, and others, have given it in every stage and variety of intermittent, without observing that it had any tendency to keep up the paroxysm. It is, however, possible, and even probable, that the remedy is more efficacious during the interval, though it may not be absolutely hurtful in the paroxysm. A very necessary condition to its perfect success, is, that it sit well on the stomach; for if it occasion vomiting, or purging, it is much less likely to act beneficially. Hence emetics and purgatives have been recommended to precede its use, while aromatics and opium have been given with it. As the remittent form of disease is less easily influenced by Cinchona, our object is to reduce the disease to a regular intermittent—that is, to remove the cause which keeps up a febrile condition of the system during the interval between the exacerbation. This is frequently of an inflammatory nature, and blood-letting, followed by purgatives

and diaphoretics, is generally our best remedy.

There are two modes of attempting a cure of an intermittent by Cinchona, or the sulphate of quinia: one is, to exhibit a very large dose within six or eight hours of the expected paroxysm, the other to give moderate doses at short intervals, during the whole period of the intermission. The latter is the method usually adopted, and is, I believe, the best.

In some cases, where the stomach was too irritable to admit of the administration of bark by the mouth, other modes of exhibition have been proposed and tried; such as the use of bark enemata, or cataplasms of bark applied to the region of the stomach, or baths made of the decoction, or the powder, applied to the body in a dry state, as by strewing it in the bed in which the patient lies (a plan proposed by Dr. Darwin); or, lastly, quilted in a pad and worn, under the name of a bark jacket, around the body. These different modes of using bark are, however, more curious than practically useful.

Intermittent fevers are not the only periodical diseases in which bark has been tried and found useful: it is a remedy very likely to be beneficial in all cases in which a paroxysm (whether of pain, spasm, inflammation, or fever) returns at stated periods: if, however, the period be irregular, no reliance can be placed on the administration of Cinchona. As examples of diseases which occasionally put on an intermittent form—that is, recur at fixed intervals, and which have been relieved by the employment of Cinchona, or sulphate of quinia—I may mention headache, neuralgia, ophthalmia, and stricture.

When *continued fever* occurs in weak debilitated constitutions, Cinchona is sometimes found beneficial in the latter stages of the disease, when there are no marked symptoms of local disease in the head, alimentary canal, or other parts.

In *inflammatory diseases* Cinchona is sometimes admissible, as when it occurs in old persons, or in those of a debilitated constitution; or when it is of a mild or atonic character, and has existed for some time without producing any obvious organic changes, or when it assumes an intermittent form; or, lastly, when it is of a certain quality which experience has shown to be less benefited than ordinary inflammation, by evacuants, as erysipelas. But in the first stage of inflammation—when this disease occurs in strong and vigorous habits, and is of an active kind—Cinchona is an improper remedy.

In *mortification* it is useful in those cases in which tonics and strengthening remedies are obviously indicated; but it has no specific power of checking the disease, as was formerly supposed.

In *chronic affections of the digestive organs*, apparently depending on a want of tone or strength, and characterized by impaired appetite, imperfect digestion, relaxed condition of the solids, feebleness of pulse, incapability of much exertion, and inactivity of the organs generally, Cinchona is a most useful remedy. I have found the infusion of bark a preferable preparation to the sulphate of quinia in these cases; its aromatic qualities enabling it to sit more easily on the stomach. If given about half an hour or an hour before meal-times, it increases the appetite and promotes the digestive process.

To prevent repetition, I may sum up the uses of Cinchona bark by saying it is admissible in *all cases characterized by debility*, and unaccompanied by any inflammatory condition of the alimentary canal.

Administration.—In the form of *powder*, bark is now rarely exhibited, the sulphate of quinia having for the most part superseded it. The dose of it is from a scruple to a drachm. The *infusion* and *decoction of bark* (particularly the former) are most useful tonic preparations in persons whose stomachs will not admit of the employment of the powder or of the sulphate of quinia. As prepared according to the directions of the London Pharmacopœia, they are of the same strength, each being made of an ounce of bark to a pint of water. The dose is from one to three fluid ounces. The mineral acids (sulphuric or muriatic) are sometimes useful additions. There are two extracts of Cinchona, one made with water, and called merely *extract of Cinchona*,—the other made with rectified spirit, and termed the *resinous extract of Cinchona*: the latter is considered the most powerful, though the dose of both is the same, namely, ten grains to a scruple. When it is desirable to give Cinchona in the form of pills, these are useful preparations, though the sulphate of quinia for the most part supersedes their use. There are no less than three tinctures of Cinchona in the London Pharmacopœia. The simple tincture, or that called *tincture of Cinchona*, is made of pale Cinchona bark macerated in proof spirit: it is sometimes used as an addition to the infusion or decoction, the dose being from one to three drachms. The *compound tincture of Cinchona* is also made with proof spirit and pale Cinchona (the quantity of the latter, however, is less), but in addition it contains orange-peel, serpentary root, saffron, and cochineal. Its uses and dose are the same as the simple tincture. The *ammoniated tincture of Cinchona* is prepared by digesting pale bark in the aromatic spirit

of ammonia. Of course it is more stimulant than the other tinctures, and is incompatible with acids and metallic salts. The dose is from half a drachm to two drachms.

The *sulphate of quinia* is more frequently given now than any other preparation of bark. It may be exhibited in solution, or in solid form as a pill. As it is not very soluble in water, we must add either a few drops of acid or a little spirit, in order to enable us to administer it in a liquid form. The usual dose of the sulphate is from one to five or six grains; but I have known twelve or fourteen grains taken, and have heard of a scruple or half a drachm being exhibited at one dose.

ON CERTAIN NEW COMBINATIONS OF ALBUMEN;

With an Account of some curious Properties peculiar to that Substance.

By Golding Bird, F.L.S., F.G.S.

Senior Fellow of the Physical Society of Guy's Hospital, &c.

1. In the course of the following observations I shall avoid any unnecessary reiteration of facts already well known to chemists, and confine myself to referring to them only when they are required to explain any circumstances connected with those new modifications or combinations of albumen which have fallen under my notice. Our knowledge of the properties of albumen, although more extended than that of most other animal matters, is nevertheless very limited; which limitation arises, in all probability, from its comparatively weak affinity for other bodies, which prevents our becoming acquainted with any thing like very prominent or interesting features: I am, however, convinced that the study of the chemical nature of albumen will reward the investigator with a richer harvest of facts than that of any of the other proximate constituents of the animal frame, as well from its prevalence under some modification or other in every secretion of the body, as from its being the chief constituent of the circulating fluid, and constituting, if I may be allowed the expression, the type of the albuminous principles (*properly* so called) of the blood, and the pabulum from which the different secretions are formed, and the waste of the body repaired. Indeed, by a synthetic method, founded to a certain extent upon some of the novel properties of albumen I am about to mention, I trust to be able, in a future paper, to prove that many, if not all the secretions, contain albumen, although its presence has not been suspected, or if suspected not detected, and that they are indebted to the presence of a peculiar combination of this principle for many of their most prominent characters. In the course of my investigations, I had frequently occasion to observe that albumen procured from different sources frequently differed slightly in its behaviour to reagents, and an ignorance of this fact led at first to considerable discrepancy in the results of my experiments; thus I may observe that the white of egg and the albuminous secretions of serous surfaces very closely resembled each other, but differed in degree of solubility and many other minor properties, from the albumen of serum of blood, which I have generally made the subject of my experiments, after freeing it from fat by agitation with sulphuric æther; and to this form of albumen I shall constantly refer in the course of the following observations.

2. Some serum freed from fat (1.) was mixed with a sufficient quantity of a solution of pure soda to cause it strongly to affect turmeric paper; the heat of the water-bath was applied, the mixture being constantly stirred: in a short time it appeared to solidify, forming a pale yellowish transparent jelly, which scarcely at all affected turmeric paper. Distilled water being then added, and heat again applied, a nearly limpid, but somewhat mucilaginous solution of albuminate of soda, resulted, which became quite transparent by filtration: it was not at all affected by boiling or the addition of alcohol, but was precipitated by the acids, solutions of chlorine, alum, acetate of lead, bichlorides of iron and mercury, sulphate of copper, ferrocyanate of potash (after the addition of acetic acid), and tincture of galls; reactions quite characteristic of solutions of alkaline albuminates.

3. A solution of albuminate of soda (2.) was diluted considerably with cold distilled water, and placed in a tall cy-

lindrical glass vessel; through this fluid a current of carbonic acid gas was passed, the tube from which the gas issued being sufficiently long to reach the bottom of the vessel: in a few minutes the fluid, before transparent, became opaque, and rapidly deposited a copious precipitate of albumen, in the state of a beautifully white, impalpable powder; the acid gas being allowed to pass for some time longer, the precipitate gradually disappeared, until the whole was as limpid as before the experiment. The solution thus obtained was acid, and consequently reddened litmus-paper, whereas, before the experiment, it reddened turmeric; it afforded a copious deposit of those reagents which precipitate solutions of albumen in mere water, or when dissolved by acids, but not with those which affect solutions of albumen in the alkalies only: thus, ebullition caused a considerable deposit, as also did nitric acid, tincture of galls, bichloride of mercury, and alum; whereas the dilute acids and perchloride of iron did not disturb the limpidity of the fluid, although, as before stated, prior to the passage of the acid gas they produced copious precipitates. Heat, I have already stated, caused a considerable deposit of albumen in the same manner as from a mere aqueous solution of albumen which had not undergone coagulation, but differed in requiring a higher temperature, a full boiling-heat being necessary to produce a considerable precipitate. Ammonia when very dilute caused a precipitate also, which readily dissolved in an excess of the precipitant; the action of heat was of course accompanied with a copious evolution of carbonic acid gas. From these facts I was induced to conclude that the albumen previously existing in combination with the soda, had left that alkali to combine with the carbonic acid, thus playing the part of a base or electro-positive element, leaving the soda in the state of bicarbonate, that salt being of course formed by the action of the carbonic acid added: the solution might thus be supposed to contain a mixture of the carbonates of soda and albumen with an excess of carbonic acid. To this explanation it might be objected, that as alkaline bicarbonates are known to dissolve albumen, the acid gas had only converted the alkali into a bicarbonate, which thus held the albumen in solution: if this were true, how can the precipitation of albumen on the first passage of the gas be explained, unless it be supposed that the neutral alkaline carbonate which is first formed, is incapable of holding in solution so large a quantity of albumen as the free alkali, or its bicarbonate? an assumption directly opposed to fact, as I shall have occasion to show in another place: besides which, the action of reagents ought to differ, and instead of those only which precipitate acid solutions of albumen producing a turbidity, a troubling should be produced by those also which affect its alkaline solution; for surely the solution of an animal matter in a carbonated alkali approaches less to the nature of an acid than to that of an alkaline solution.

4. I next attempted to form a solution of albumen in carbonic acid, excluding the agency of alkali, which if successful would, I considered, at once demonstrate the real nature of the combination; but in this I experienced considerable difficulty, for when a current of carbonic acid gas was passed through an aqueous solution of albumen (1.), no distinct combination was obtained; and on attempting in a similar manner to dissolve albumen previously coagulated by the action of heat or acids, I failed to obtain satisfactory results, from the close state of aggregation in which the albumen was obtained appearing to present a considerable resistance to the solvent action of the acid. I at length succeeded, by precipitating albumen from serum of blood by means of alcohol, well washing the precipitate until all traces of alcohol were removed, (the vessel in which the precipitation was performed being immersed in ice-cold water to prevent the action of the evolved heat on the albumen,) carefully avoiding any unnecessary exposure to the air, which, by drying it, might serve to lessen its solubility in the acid. A portion of this finely divided albumen was diffused through cold water, and submitted to the action of a current of carbonic acid gas; after a short time it *entirely dissolved;* but the solution was not perfectly limpid, nor did it become so by filtration. In preparing this solution care must be taken to add a sufficient quantity of water, otherwise a considerable quantity of albumen will be carried mechanically out of the fluid by each bubble of gas, and being deposited on the sides of the

vessel, will dry rapidly, and on being returned to the fluid will be found to have lost much of its solubility in the acid; and it is very remarkable how large a quantity of albumen can (by this kind of inverted filtration) be carried beyond the influence of the gas. The finely divided albumen obtained by passing a *limited* quantity of carbonic acid into albuminate of soda (2.), after well washing, may be substituted for that precipitated by alcohol, although it must be observed that it is not quite so readily soluble as that obtained by the latter process, owing to its having undergone some modification, probably in its stage of aggregation, difficult to unravel. If the precipitated albumen is merely digested in an aqueous solution of carbonic acid in a closed flask for some hours, as much appears to be taken up as if a *current* of the gas was used; and hence I have been led to conclude that the solubility of the albumen is not so much owing to the formation of a definite soluble compound (carbonate?) as to its being merely dissolved in the quantity of acid gas which water is capable of holding in solution at ordinary atmospherical pressure and temperature.

5. The solution of albumen in carbonic acid behaves to reagents like a mere aqueous solution,—as dilute serum of blood, with, as far as I know, a single exception, and this is the action of very dilute ammonia, which produces a precipitate of albumen soluble in an excess of the alkali. Heat produces a deposit of albumen with a simultaneous evolution of carbonic acid gas; nitric acid, tincture of galls, acidulated ferrocyanate of potassa, and bichloride of mercury, all produce copious precipitates. By exposure to the air it does not very readily become turbid, the carbonic acid being very slowly evolved: after the lapse of a week, however, the albumen is deposited in a white impalpable form. The presence of carbonic acid in these solutions of albumen appears to prevent its ready precipitation by nitric acid, several drops being required to produce a considerable troubling; and on this account I am accustomed to use the nitrohydrochloric acid as a preferable precipitant when I have the detection of albumen in an animal fluid in view, as the action of this acid does not appear to be so liable to be affected by carbonic acid.

6. Wishing to ascertain with greater accuracy whether the albumen precipitated from its solution in soda by carbonic acid depended for its re-solution upon the formation of a compound with that acid, or upon the solvent action of the bicarbonate necessarily formed, I availed myself of Dr. Stevens's adaptation of Professor Graham's law of the diffusion of gases, by placing a glass vessel filled with the solution (3.) under a large receiver full of hydrogen gas inverted over water. In twelve hours the apparatus was examined, and the fluid subjected to experiment, previously quite limpid, was found to be turbid from the deposition of its albumen; the carbonic acid having been abstracted by the hydrogen gas. A modification of this experiment was then made by placing over the fluid subjected to the hydrogen gas a capsule filled with lime-water: the carbonic acid being abstracted as before, was absorbed by the lime-water, causing the precipitation of carbonate of lime, which occurring simultaneously with the precipitation of albumen, appeared to bear so near a relation to cause and effect, that there can, I think, no longer remain a doubt as to the solvent nature of carbonic acid with regard to albumen. These experiments prove, moreover, another interesting fact, viz. that however energetic a solvent for albumen the uncombined alkalies may be, their carbonates must be regarded as comparatively powerless, contrary to the generally received opinion; for the same quantity of soda must necessarily have existed in the fluid after, as before its being subjected to the action of the carbonic acid, and subsequently of the hydrogen, the only difference being that it had become converted into a carbonate, whereas before the experiment it was pure and uncombined, *quoad* carbonic acid.

7. I was next desirous to ascertain what was the degree of solvent action capable of being exerted on coagulated albumen by alkaline carbonates, and whether this solvent power depended upon any partial decomposition of the salt employed, the acid or base being set free; I therefore precipitated albumen as before from fresh serum by means of alcohol, well washed it with cold distilled water, and divided it into four portions, which I placed in as many flasks, the first of which was filled up

with a solution of bicarbonate of soda, the second with a solution of the carbonate of soda, the third with water impregnated with carbonic acid, and the fourth with recently boiled distilled water; they were allowed to digest for twelve hours, and then examined after filtration with the following reagents:

Solvent employed.	Ebullition.	Nitric Acid.	Acetic Acid.	Sol. of Alum.	Bichloride of Mercury.
1. Bicarb. soda.	Dense opacity.	Copious precipitate.	Precipitate sol. in excess of acid.	Copious precipitate.	Copious precipitate.
2. Carb. soda.	Opacity.	Do.	Do.	Do.	Do.
3. Sol. of carbonic acid in water.	Copious precipitate.	Do.	....	?	Do.
4. Recently boiled water.	....	....	....	....	....

The water in the fourth flask was used for the purpose of ascertaining whether the precipitated albumen contained any of the soluble form of that principle which might have been mechanically carried down with it; but that this was not the case was satisfactorily proved by the five reagents employed not in the least disturbing the limpidity of the filtered fluid. It will be observed that ebullition produced a copious troubling in the solution of bicarbonate of soda that had been digested on the albumen in the first flask, as if a portion of uncoagulated albumen had been present, which I have just shewn was not the case. How, then, can it be accounted for? Might it not be suggested that the salt employed had been decomposed into a neutral carbonate and free acid, which latter dissolved a portion of albumen, the carbonate being also partially decomposed into free alkali, which by dissolving albumen formed an albuminate of soda, whilst the portion of carbonic acid deserted by its base united to another portion of albumen, and thus the solution might be supposed to consist of undecomposed carbonate of soda, albuminate of soda, and carbonate of albumen (if this expression may be *provisionally* admitted.) With regard to the contents of the second flask, in which the neutral carbonate was used, this appears to have undergone an analogous decomposition, for, like the contents of the first flask, we find them present the same phenomena with reagents as would be produced by a mixture of solutions of albumen in carbonic acid and albuminate of soda; but experiments are required to clear up the obscurity enveloping this point.

8. An interesting field for investigation thus appeared to present itself in the examination of the action of albumen on the alkaline carbonates, the investigation of which I commenced with great care, and obtained some highly interesting and unexpected results; but not having quite concluded my examination of this part of my subject, in consequence of the multitudinous repetition of experiments required to obviate the various sources of fallacy peculiarly incident to investigations in organic chemistry, I am compelled to defer their publicity for some weeks, when I trust to be able to communicate some curious and important facts on this interesting subject *.

44, Seymour-Street, Euston Square,
July 6, 1836.

* London and Edinburgh Philosophical Magazine, for Aug. 1836.

THE VACCINE VIRUS WEAKENED BY FREQUENT TRANSMISSION.

To the Editor of the Medical Gazette.

Sir,

In a former communication, which appeared in the Medical Gazette, I hazarded an opinion that vaccine virus might lose in part its protecting power, by a too frequent transmission through the human system; and I then stated my reasons for entertaining this opinion to be, the comparative rareness of small-pox occurring after vaccination, for several years after its first introduction, and its annually increasing frequency within the last twelve or sixteen years.

Other reasons have been assigned as the supposed cause of this increased frequency, and many eminent medical men imagine that the protecting power of vaccination only extends over a certain number of years, or at least that its protection is diminished after a certain length of time; and though it may still mitigate the small pox, it ceases to act as a preventive to that disease; and that an individual, to enjoy perfect immunity, should be re-vaccinated at certain intervals—some say once in seven years; and certainly it is a measure to which no serious objection can be urged, inasmuch as it is a useful test to ascertain the efficacy of the former vaccination; for when the pustules have the first time unequivocally run their course, I have never known an instance of their doing so again; consequently no second vaccination can afford additional security.

At this very time I have two cases of small-pox in the same family, who were re-vaccinated six months ago. The punctures inflamed in the usual way, but disappeared on the third or fourth day, evidently showing the local action of the virus, but the insusceptibility of the system to the disease. I have seen numbers of similar instances, which, in my opinion, are a convincing proof of the perfect inutility of re-vaccination, unless as a test of the efficacy of the first.

An opinion has been advanced by Mr. Grantham, of Crayford, that vaccination during the period of lactation is not likely to afford the same protection as when performed at a later period, from the known insusceptibility of children at the breast to contagion. I fully concur in that gentleman's opinion as to the lesser susceptibility of children to take contagious complaints during lactation, but I cannot see how this can influence a complaint which we are satisfied they do take when inoculated for it; and also that it runs its regular course, and that at a later period a subsequent vaccination does not take effect: under these circumstances, I think we cannot reasonably entertain a doubt that the first operation was efficient. There are other reasons why it would be objectionable to delay vaccinating infants until after the period of lactation; but this has been fully pointed out in an excellent paper by Mr. Aikin, in which also that gentleman thinks the opinion I have advanced, at the commencement of this paper, not tenable. He says, even were we to recur to the original source from the cow, it is most probable that after one or two transmissions through the human subject we should then obtain a virus neither more nor less active than that we are now using, unchanged by more than thirty years' reproduction. For Mr. Aikin's opinion I entertain great deference; he has enjoyed opportunities which no private practice can afford. At the same time, when we see small-pox prevailing around us year after year, amongst those who have been vaccinated (although I am happy to bear testimony to its being in a modified form), the question naturally arises, from what cause can this increased frequency originate?—and when I find that all the cases which have come within my own observation have been vaccinated within the last twenty years, and that those who were done at a more remote period, although equally exposed to contagion, have escaped; and, moreover, that the disease has been most frequent amongst those who have been vaccinated within the last twelve or fifteen years; it is not to be wondered at that I should have drawn the conclusion which I advanced as an opinion at the commencement of this paper: at the same time, I only advance it as a matter of inquiry, for I am well aware it must be tested on a much more extensive scale, before any just inference can be attained; and it is for the purpose of

stimulating others to inquiry, that I am now induced to put forth my own crude notions upon the subject: but I think it is a debt which we owe, as a nation, to the memory of our illustrious countryman, Dr. Jenner, to endeavour to place his discovery upon the best and surest basis.—I remain, sir,

Your obedient servant,

EDWARD GREENHOW, M.D.

North Shields, July 25, 1836.

CASE OF EXCISION

OF

A PORTION OF THE ILEUM AND THE MESENTERY,

Successfully performed.

BY PROFESSOR DIEFFENBACH,

Of Berlin *.

NOTHING can more forcibly prove the difficulty of healing wounds of the intestines, than the variety of sutures recommended by different surgeons for this purpose. In the majority of cases the suture becomes dislodged after the replacement of the intestine, and a fatal extravasation of fæces into the abdominal cavity is the consequence. This occurs not only in transverse and longitudinal wounds of magnitude, but happens sometimes in punctured wounds of the intestinal canal. In cases of entire division of the intestine, the difficulty of restoring the patient is increased; and, indeed, he may consider himself fortunate if he escape with an artificial anus. The misconceptions and errors of earlier practice being laid aside, it is only lately that it has been the practice, by means of a simple band of peritoneum, to maintain the intestine, whether entirely or partially divided or penetrated by gangrene, in connexion with the abdominal parietes, so that the fæcal matter may be discharged by this means. By careful and attentive assistance of the surgeon, an artificial anus may be thus produced; but the closing of this requires, again, the utmost talent and perseverance. In some cases of this kind, which have withstood all the usual modes of treatment, I have been fortunate enough to produce the closure of the aperture, either by means of transplantation, or the gradual contraction of the edges, by means of a continuous ligature.

The surgery of former times, so poor in respect of sound physiological foundation, considered *invagination*, or the insertion of one end of the intestine into the other, as a very ingenious method; without considering that the contact of membranes of totally different natures, mucous and serous, would completely prevent an union taking place. This method, therefore, and others which have been attended with as little success, must give way to the general application of a band of the peritoneum, in the manner above stated. The modern French, or Dupuytren's school, have revived, with praiseworthy zeal, the earlier idea of suture of the intestine; and amongst them, Amussat, Jobert, and Lambert, have distinguished themselves by the ingenious modes proposed by them for this purpose—plans which they have proved by repeated experiments upon animals, so that they deserve an honourable place in the annals of surgery.

I have already published my remarks upon Amussat's latest plan, in the Remarks upon the present State of the Profession, in Paris, which have appeared in this journal. My own observations, however, upon the application of the ligature in larger or smaller intestinal wounds, shall be reserved for the present; I will only record here a brilliant case of the rapid healing of an entirely divided intestine, which will remain a lasting testimonial.

Some months since I was called upon in the morning to attend a country labourer, aged 50, suffering under strangulated hernia. I found a strongly-built, powerful man, with femoral hernia on the right side. The incarceration had already existed fourteen days; and, during this time, repeated but fruitless attempts to replace the intestine had been made by different surgeons. From the extended inflammation in the whole neighbourhood, added to the prolonged incarceration, I was led to expect that mortification, together with extravasation of fæcal matter in the hernial sac, had already taken place. As the skin and integument were not yet weakened, I considered the immediate opening of the sac as the first and most important step; still the unruly old

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* From the "*Wochenschrift für die gesammte Heilkunde*;" June 1836.

man would scarcely allow me to make an examination with my fingers, much less would he consent to an operation. In addition to these difficulties, the patient's being quite deaf, prevented the necessary explanations of his condition; so that I found myself at length obliged to give up all hopes of affording relief. I should, perhaps, mention that the patient had suffered, during the whole time of the incarceration, all those symptoms which usually accompany strangulation. The abdomen was tense and distended; there was perfect obstruction, and, in short, all the symptoms which would seem to threaten speedy death. Still it was matter of satisfaction to me that in leaving the patient, there appeared so little chance of success, had he consented to my operating upon him.

The following night I was again requested to visit the patient; it was with reluctance I went, because the journey promised so little success. The poor man was now sinking fast, and the anxiety of death was evident.

The abdomen was more tympanitic than in the morning, and, indeed, the separate convolutions of the intestine could be plainly distinguished through the abdominal parietes. There was also that violent rumbling of gas in the intestines, so often a symptom in extreme cases.

With the help of my valuable assistant, Dr. Hildebrandt, and the landlord of the house, I undertook the operation. The first step was an incision, the length of my finger, through the centre of the widely-extended and flat tumor. The cellular membrane was spotted, and firmly attached to the outer coat of the hernial sac. Upon opening the sac, there escaped a putrid mass, consisting of decomposed hernial fluid, with portions of gangrenous intestine and fæcal matter. The small portion of strangulated intestine (about the size of a plum) had an aperture in its superior surface large enough to admit the thumb. After properly cleansing and examining the parts, no fæces escaped. It was with difficulty that the forefinger could be introduced through the mouth of the sac into the intestine; and again, upon withdrawing my finger, nothing followed it. Without disturbing the adhesion of the intestine at the mouth of the sac, I made three deep incisions in the femoral ring; this also proved fruitless, and we could not produce the discharge of fæces either by means of manipulation or change of position. This arose partly from the extreme narrowness of the mouth of the sac, and partly from the thickened parietes of the strangulated portion. Once more I applied some force, for the purpose of dilating the neck of the sac, but this last attempt was attended with as little success. Unwilling to let the man die without making farther attempts to give him at least some relief, I proceeded to divide the adhesions, and then drawing the intestine out until I came to the sound part, I cut out the portion that was already perforated and had been incarcerated, together with the thickened portion on each side, altogether comprising a length of about three inches. I also removed with the scissors a corresponding portion of mesenterium. One of the divided arteries of the mesenterium bleeding, I passed a ligature round it, and cut off the ends close to the knot. I did not apply torsion to the vessel, fearing that from the absence of support the vessel might untwist itself, and thus lead to unpleasant consequences. Whilst I was thus engaged, each of my assistants held a portion of intestine between his fingers. These portions contracted so firmly, that nothing larger than a common quill could have been introduced; the extreme edges, however, were relaxed, and could be easily directed outwards. I now proceeded to join together the angular wound of the mesentery, by bringing its edges into contact by means of a continuous suture, which was composed of a very fine silk thread. I then joined the edges of the intestine by means of a separate thread, making the first stick at about two lines distance from the edge; and so, by passing the suture transversely across the fissure, whilst each stitch entered the muscular coat, I brought the serous coats in contact with one another, in the same manner that Lambert teaches. The mucous membrane was not at all wounded, but its edges were directed inwards, forming a ring. The intestine was now returned with the greatest care, lest in moving it the edges might be torn through. So far every thing had gone successfully, and I waited some time with the hope of an evacuation taking place. As this did not occur, I ordered some castor oil, and then went home,

with the expectation of finding the patient a corpse on my next visit.

Early on the following day I found him still living, but without having had an evacuation. Strong doses of ol. ricini had been attended with no result; I therefore added ol. crotoni, and directed the patient to be raised and placed upon his feet. Immediately after this had been done, there followed some most plentiful evacuations, accompanied with the sensation of considerable relief; and such a general improvement of his condition took place, that he may be pronounced to have been no worse than he would have been had the hernia been accompanied by moderate symptoms. The abdomen had contracted after the continued evacuations, and his feelings were as favourable as could have been wished.

In this manner passed several days, during which I continued a moderate antiphlogistical treatment. An emulsion, consisting of ol. ricini, with aq. lauro-cerasi, was the only medicine I had recourse to. His diet consisted at first only of gruel; afterwards he was allowed veal broth. The condition of the patient improved daily; the only complaint he made was of hunger. He was soon in a state to take solid food without inconvenience, and his stools became quite natural.

There was a considerable secretion of pus during the healing of the external wound, but the abundant granulation showed the excellence of his constitution.

Several of my professional friends visited the patient, and took lively interest in his probable recovery. This followed so rapidly, that after fourteen days he was able to stand, and pass some hours a day in his arm-chair. The dressing of the wound was under the care of Surgeon Sierig, and was attended with such success, that in three weeks only a little scurf remained.

In the fourth week the patient was quite healed; he ate and drank as usual, and returned to his laborious field work. I did not visit him after that time, neither did he come to me.

Some weeks subsequent to the perfect recovery of this man, I was requested suddenly to visit him; but as I was indisposed at the time, I begged Dr. Von Arnim to go in my stead. He found that the patient, after heavy labour, and an immoderate meal of fat meat and other indigestible substances, was suffering from violent pain in the abdomen, vomiting, and constipation. From these symptoms, Dr. Von Arnim anticipated intussusception. Bleeding in the arm, and by means of leeches, purgatives, and clysters, was had recourse to, but without success. The pain became more and more violent, and the obstruction of the bowels remained until he died.

I was present at the *sectio cadaveris*, and although I felt vexed at the death of perhaps the only man living at that time who had recovered in so astonishing a manner after the excision of a portion of intestine, yet, on the other hand, it was matter of consideration to me to think that the death of the patient would explain the mode of healing, and secure a boon to the science.

The following is the result of the post-mortem examination, conducted by Professor Froriep with his usual care and ability:—

In outward appearance the body was well-conditioned and firm. The abdomen was very tense, and somewhat distended. Percussion with the finger gave no sign of the hollow tone distinguishing tympanitis, but, on the contrary, the dull sound which is usually heard only over the liver was extended over the whole abdomen. In the right groin was a bluish firm cicatrix, somewhat sunk, although not drawn inwards. The navel was free from contraction inwards. Upon opening the abdomen, some reddish clear fluid escaped. As the abdominal parietes, which had been divided by a cross section, were thrown backwards, it was observed that the entire anterior portion of the cavity was occupied by the distended and extremely complicated convolutions of the small intestine, so that all the other viscera were concealed by them; a portion of the omentum only was seen emerging from the right hypochondrium, and passing obliquely over towards the pelvis, was attached in the neighbourhood of the left foramen obturatorium. Underneath this portion of omentum the intestines moved to-and-fro with perfect freedom; therefore no sort of obstruction could be caused by it. This band was then divided, and the intestines, which formed so compact a layer, were lifted up, in order to see

the condition of the other parts situated more deeply.

In the right iliac region were the cœcum and a convolution of small intestine, not distended as the remainder, which was firmly attached to the posterior edge of the femoral ring, and from this spot was continued a portion equally free from inflammation and distension: this passed over to the left lumbar region, where it ended in a complicated knot of small intestine, adherent to the parietes, quite firmly united, and considerably inflamed.

This preliminary examination gave evidence of two abnormal conditions: first, adhesion and intricacy of the small intestine in the left lumbar region, above which the intestine was inflamed and immoderately distended,—below it, empty, collapsed, and uninflamed; secondly, adhesion of the intestine at the inner femoral ring on the right side, where the operation had formerly been performed for hernia: still, it was nevertheless evident that the intestine was not impermeable at the seat of the operation, but at some point considerably above it, the portion of intestine lying on each side of the spot alluded to being empty. Still, great care was necessary in pursuing the investigation, as nothing could more easily occur than such a displacement of the parts as should prevent the recognition of the true cause of the obstruction.

After examining the colon, and finding that congestion and distension were only in the small intestine, I commenced at the duodenum, and continued the examination from thence downwards, its coats were thickened, and here and there upon its surface were perfectly isolated patches of coagulated fibrin. In the cellular tissue, between the serous and muscular coats was a partial serous extravasation. These signs of enteritis became more evident on the ileum, where the convolutions were in some places slightly adherent one to the other. When I got to the middle portion of the ileum, I found the colour of the intestine a dark purple red; it was distended to treble its usual volume, and covered with numerous congested and dark-looking blood-vessels. The distension was greatest in the neighbourhood of the adhesion in the left lumbar region, but it terminated suddenly at a part where another convolution of the ileum was drawn round the first like a band. The distension was not caused by gas, but by an immense quantity of fluid fæcal matter which filled the stomach, duodenum, jejunum, and ileum, as far as the obstructed spot. The obstruction was occasioned by a portion of the ileum being united, by means of false membrane, to a convolution which had evidently after this completely revolved upon its axis, so that the two processes of this convolution had twisted themselves about one another like the strands of a rope (see fig. 1.) In this situation new false membrane was produced (evident from the redness of its vessels), and thus the entire convolution was firmly united, and the constriction of the ileum made inseparable. Around the whole lay more recent patches of coagulated fibrin.

In the convolution and below it the intestine was almost empty, containing only a small quantity of pale yellow mucus, without fæcal odour, and in some parts collapsed into folds. A portion of intestine in this part, about two feet in length, and likewise empty, passed over towards the right side, across the lumbar vertebræ. Here was likewise a firm false membrane from one portion of intestine to another adherent portion: underneath this was a space sufficiently large to admit three fingers; this was empty. From this spot the intestine passed downwards into the cavity of the pelvis in many convolutions, and was closely attached to the right side; it then ascended a little, and passed immediately to the inner orifice of the right femoral canal, where it was likewise firmly adherent to the adominal parietes (see fig. 2.) As I carefully divided the pseudo-membrane in this part, between the abdominal muscles and the intestine, to the depth of from two to two and a half lines, with a scalpel, a drop of pus made its appearance; and as I wiped this away with a sponge, I discovered the end of a silk suture, which, however, was still firmly embedded: of course this proved that I was arrived at the place where the intestine had been united in the operation. This spot was firmly connected with the parietes and the neighbouring convolutions. I now opened the intestine above this part (fig. 2, *e*) sufficiently wide to admit the little finger; this passed easily, and,

indeed, directly after I passed the index finger through the formerly-divided spot, there was contraction of the passage to be discovered. As I now proceeded to open this part from above downwards, the parts appeared as represented in fig. 2. The superior portion of the ileum was united with the inferior by means of a smooth cicatrix, which was only interrupted in two spots by the suture: in this cicatrix lay the suture before described as seen externally, firmly attached at the point *o*, and from thence its two threads passed downwards, lying in the cavity of the intestine. From this spot the ileum proceeded behind the convolutions represented in fig. 2, across the *linea innominata*, and, after extending itself a few inches, joined the cæcum. Here we found a few hard fæcal lumps, and the pale yellow mucus before mentioned. From the anterior or outer side of the spot where the intestine had been joined, the substance of the cicatrix passed through the canal communicating with the external cicatrix. The relation of the intestinal coats at the cicatrized portion is represented in the fig. No. 3.

The superior portion of the intestine is quite smooth, and has neither swelling nor fold as far as the inner smooth cicatrix, where the *papillæ* of the mucous membrane cease. This line is about half a line wide, and below it the intestinal coats are collectively contracted into a triple fold, or projection, which is kept in that condition by the adhesion and subsequent contraction of the pseudo membrane, which lies externally, and connects this portion with the cicatrix, as before explained. Below this tumor the intestine is in every respect in its natural condition. For some little space both above and below, the intestine was connected with the peritoneum lining the anterior parietes by means of effused pseudo membrane (fig. 3, *e*), which it will be seen is likewise in connexion with the cicatrix in the *annulus cruralis*.

As the remaining organs presented nothing interesting in respect to the operation, I shall take no notice of them.

FIG. 1.

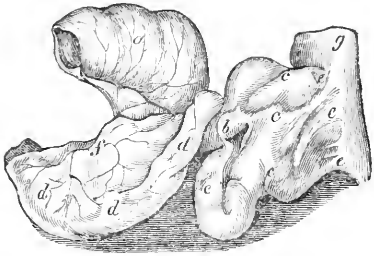
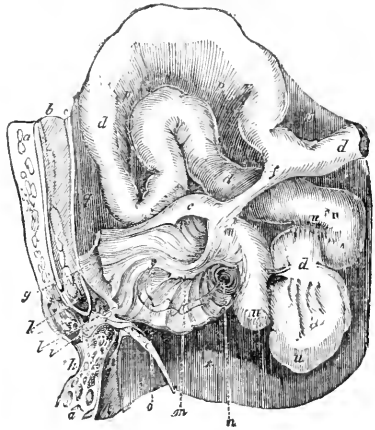


FIG. 2.



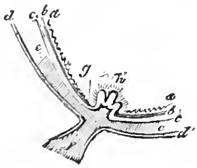


FIG. 3.

Explanation of the Drawings.

FIG. 1.—The confinement of a portion of the small intestine, whereby the intestine was rendered immoveable, and ileus was occasioned, followed by death.

a, Superior portion of the intestine, of a bluish-red colour, extended to treble its natural diameter, and filled with fæcal fluid.

b, Continuation of this portion, as it escapes, empty and collapsed, out of the complicated contortion, and covered with patches of coagulated fibrin.

c, *c*, *c*, Convolution of intestine proceeding from thence, and firmly connected together by strong ligaments of pseudo membrane.

d, *d*, Inferior portion of collapsed intestine, which proceeds from the spot behind (*b*), then around it, and by this means strangulates the portion (*a*) at the spot where it joins (*b*), and thus renders it immoveable.

e, *e*, Pseudo membrane recent and containing blood-vessels: by means of this membrane the part (*c*) is confined in its unnatural relation.

f, Divided mesenterium.
g, The inner surface of the abdominal parietes.

FIG. 2.—The artificially-united portion of the ileum firmly attached to the inner edge of the femoral canal; (this has about two feet of intestine between it and the part represented in fig. 1.)

a a, Layer of fat on the outside of the abdominal muscles (in the inguinal region.)
b, Muscular portion of the abdominal parietes, including the tendon of the m. obliq. extern., and the bodies of the m. obliq. intern. and transversus.
c, Peritoneum.
d, Superior portion of ileum continued from the spot where, in fig. 1, *d* is represented as divided.
e, Intestine opened immediately above the part where union has taken place.
f. Bridge formed by pseudo ligament passing from the intestine, *d*, to that marked *e*.
g, The adhesion of the united intestine to the neighbouring parts, by which means the cicatrix is surrounded by a layer of false membrane in its whole extent.
h, The cicatrix as seen externally, from which the original wound may be traced to the united intestine (see fig. 3.)
i, Ligamentum Pouparti, at the place where it sends off the lig. Gimbernati inwards to the os pubis; on the anterior inferior edge is observed the processus falciformis.
k, The spermatic cord, divided at its passage through the external abdominal ring.
l, Cicatrix uniting the superior and inferior portions of intestine at the place where the operation was performed. (See fig. 3).
m, The same, inwards, where the intestinal coats are more folded, and so held together by adhesions.
n, The inferior portion of intestine, passing under the convolution here represented, in order to join the cœcum behind.
o, Silk threads which formed the suture, lying in the cavity of the intestine.
p, Mesenterium.
q, Inner surface of the abdominal parietes.
r, Inner surface of the pelvis.
s, Section of the os pubis, sawed through a little on the right side of the symphysis.
t, Musc. pectineus of the right side, under the fascia lata.

FIG. 3.—A sketch to exemplify the method in which the divided intestine has united in this instance.

a, Mucous membrane of the intestine.
b, Muscular coat.
c, Peritoneal coat.
d, Peritoneum lining the abdominal parietes.
e e, Layer of organised fibrin (pseudo membrane) between the intestine and the anterior parietes, which surrounds the united portion on both sides, and, by means of the femoral canal, stands in connexion with the external cicatrix.
f, External cicatrix in the femoral canal.
g, Cicatrix in the intestine, in which neither of the three coats can be distinguished; it is even and smooth, about half a line wide, and extending entirely around the intestine. The coats of the intestine above the cicatrix are even; below they are folded.

From this examination, therefore, it is evident that the mode in which the intestine healed did not stand in the least degree connected with the strangulation which was the immediate cause of death.

CASE OF PROCIDENTIA UTERI.

To the Editor of the Medical Gazette.

SIR,

SHOULD you think the accompanying case of procidentia uteri worthy of a place in your valuable journal, you will oblige me by its insertion.—I have the honour to be, sir,

Yours respectfully,
JOHN KENDRICK.

12, Manchester-street, Manchester-square,
July 28, 1836.

Prolapsus uteri is, as all medical men know, of very frequent occurrence, but the more aggravated form—viz. that of procidentia, is not quite so common. In women who have been repeatedly pregnant, and have had what are vulgarly termed hard labours, the latter form is sometimes met with; but in young females, especially those who are unmarried, I have reason to think it is of very rare occurrence.

On the 25th of June last I was requested to see Miss C., of Bow, ætatis 19. Twelve months ago I was solicited to prescribe for her, she then labouring under leucorrhœa. The usual remedies were adopted, and she got well. I heard nothing more of her until this period, when, in consequence of her having a small but painful tumor on the sacrum, she asked her mother to look at it, hoping that she would relieve her by pricking it with a needle. On proceeding to do so, she was much shocked on perceiving a large tumor hanging from the pudenda.

Immediately on making this discovery I was sent for, and on my arrival found the poor young girl in bed, with the uterus protruding beyond the pudenda for four inches and a half in length, in a state of great inflammation, excessively painful to the touch; and, on closer examination, I found four small ulcers on its anterior surface, with nasty ragged edges, and about the size of a large pea. She was at this time labouring under the catamenia. My first object was to attempt a reduction, which I found impracticable, from the great pain it gave her.

On questioning her, she admitted that the "lump," to make use of her own expression, had been there for six

or seven months, and had grown much larger; she had never complained to her mother, nor had she any idea that there was anything seriously the matter with her, (she being otherwise in perfect good health,) until her mother made this discovery.

I ordered a dozen leeches to be applied to the surface of the tumor, with brisk cathartics, warm fomentations of poppies and chamomile, and visited her again on the 27th, when I found her in much the same state; the volume protruding still highly inflamed, the ulcers looking better and more healthy: the uterus did not appear quite so tense, but was still irreducible, from the pain produced on attempting it. The catamenia had ceased.

I ordered the leeches to be repeated, with the aperient medicines, and promised to visit her again on the 29th, when I found the uterus much reduced in volume, the ulcers quite healed, and on attempting its reduction, which was after some time effected, she experienced no pain. Having effected this, I then introduced a globular pessary, recommending rest and the horizontal posture for some days. Since then I have seen her several times, and she continues to be in perfect health.

The publication of an isolated case such as this, it may be contended by some, does no good; but if it only leads us to be more minute in our investigations, relative to some of the affections under which young females labour, it may tend to lessen some of their calamities: in this instance I take blame to myself for not being more particular in my inquiries, when, twelve months ago, I was requested to prescribe for my patient.

BANDAGING THE ABDOMEN AFTER DELIVERY.

To the Editor of the Medical Gazette.

SIR,

HAVING recently had occasion to refer to Dr. Ramsbotham's Lectures, published in the GAZETTE, I wish to observe that I think his directions concerning bandaging after delivery, if generally acted upon, would lead to much mischief, by encouraging the neglect (already too frequent) of one of the most important, though one of the most simple, of the duties of the accoucheur.

Dr. R. says*, "The management of the bandage, however, had better be left entirely to the nurse; for there surely is something highly indelicate in its being applied by a man,—much more so, indeed, than any of the duties we are ordinarily called upon to perform under natural labour. To be of service it should be next the skin, must be sufficiently broad to reach from the pubes to above the navel, and cannot be properly adapted unless the abdomen be more or less uncovered."

If, in accordance with the above advice, the accoucheur leaves the performance of this duty, simple as it is, to the nurse, he will almost certainly, on examining how she has executed it, find the bandage either loosely encircling the abdomen, or, if tightened, making pressure somewhere where it should not (usually the epigastrium)—at all events the uterine region being very inefficiently compressed. If, therefore, he wishes to give his patient the benefit of its effectual application, he must adjust it himself; and this he can do without involving any exposure whatever of the woman's person.

As soon as the placenta has been removed, and we have satisfied ourselves that the uterus has contracted, the bandage, consisting of a broad strip of some unyielding material, (a jack-towel, for instance, answers the purpose admirably) may be passed under the woman's waist, and without in the least disturbing her from the horizontal posture, drawn so low down that it surrounds the back part of pelvis, and (crossing over the projections of the ossa ilii) the lower part of the abdomen. If, however, we merely fasten it in its present position, it would, on account of the bones of the pelvis bearing it off from the abdomen, make little or no pressure upon the uterus, and would, moreover, upon the patient's moving ever so little, ride up towards the epigastrium. Before fastening it, therefore, we must apply two or three napkins, previously folded up as a pad, directly over the uterine region, &c.; then drawing the bandage as tightly as the woman can conveniently bear it over these, secure it at its full width by

* MEDICAL GAZETTE, vol. xiv. p. 3.

means of three or four very large pins. By this means we compress the uterus as effectually as if the hand were constantly upon it; and the bandage retains its situation.

All this may be applied over the clothes the woman has been confined in; and when she has lain a proper time, it must be removed by her attendants while they shift her soiled clothes, and then readjusted in precisely the same manner (when she has been placed comfortably in bed) over her night-dress. The nurse having seen the practitioner apply it in the first instance, will, unless very stupid, (no rare occurrence) be competent probably to this second and any subsequent application. I see no especial benefit which would result from applying the bandage as directed by Dr. R., next the skin; and the mode above described of course involves no exposure whatever: it would be a matter of congratulation if all the other necessary duties of the accoucheur were as free from indelicacy. This matter, although apparently trifling, is not unimportant. It would be well worthy our attention, merely as a means of contributing to the *comfort* of our patient, which is always materially increased by the due application of pressure, as it is interfered with when that pressure exists upon some part where it is not needed. But the practice has higher claims to our notice as a means of lessening the severity of those severe *after-pains* which women who have had large families are so often the subjects of, and as a means of preventing *hæmorrhage*. Every practitioner who has attended to this point must have observed how rare hæmorrhage is where pressure has been resorted to early, and maintained effectually; and that oftentimes in cases in which the patients in prior labours, where this practice has been neglected, have almost constantly lost more or less by floodings, or very profuse lochial discharge. I had long been aware of the prevalence of the custom, among medical men, of leaving this duty to the nurse; but seeing its neglect recommended by a lecturer to his pupils, I have deemed it right to address the foregoing observations to you upon the subject.—I remain, sir,

Your obedient servant,

John Chatto.

15, Leigh-street, Burton Crescent,
August 3, 1836.

TENT FOR KEEPING OPEN DISCHARGING ABSCESSES.

To the Editor of the Medical Gazette.

Sir,

Few surgeons are long in practice ere they encounter difficulties, from which the learning of the schools cannot deliver them; and peculiar cases ever and anon occur which put us to our shifts, and throw us entirely on our own resources. This remark is suggested by the following case:—

A young lady had a large chronic abscess over the sternum and most of the ribs on left side of thorax, which I opened on the 10th of March last. Partial caries of the sternum and ribs was discovered, and very considerable quantities of matter have continued to accumulate, every few hours, within the cavity of the abscess. In this state it became desirable that the pus should be allowed exit as speedily as it collected. A tent of lint had heretofore been introduced, and renewed every eight hours, when the abscess was emptied; but a great objection to this tent was, that it acted also as a plug, and prevented the escape of the pus. Various means were devised, but proved ineffectual, to obviate this objection to the tent; and a canula was tried, but the pus was so consistent, that it did not flow freely through this channel. At length the happy idea occurred of distending the lips of the opening by means of an elastic piece of whalebone, so small and thin as would suffice to distend the opening by its pressure, and yet allow a free passage for the contents of the abscess. This was tried, and it proved an admirable discovery.

A small slip of whale-bone, about one inch and a half long, and one-eighth of an inch broad, was shaven thin and fine, covered by a piece of soft silk, and the ends smoothed away, so that no points remained. This, with the ends bent towards each other, forming a semicircle, was introduced into the opening and allowed to expand, and thus keep the lips of the wound patent. A thread was simply attached, to prevent the tent slipping into the cavity of the abscess. This tent is still used, and occasionally placed with advantage perpendicularly, or transversely, against the opening, while

the matter is received upon several layers of soft lint surrounding it.

Three principal objects for which tents may be employed, are, 1st, to keep an opening patent; 2dly, to dilate an opening already made; and 3dly, to allow the escape of the fluids of an abscess as speedily as they collect.

The tent of lint in common use only serves the first of these objects. The sponge-tent, much used for *dilating* small openings, is now discarded, as it served that purpose but imperfectly; and tents of wick, formerly employed after paracentesis thoracis, to keep up the opening, and at the same time favour the immediate discharge of fluid, were not found of much service. This elastic whalebone tent to which I have alluded, not only kept the opening patent, but dilated it fully, and saved cutting in a case where it would have been hazardous to lose a drop of blood, and also allowed free vent for the speedy escape of the collecting pus. I can conceive the practical application of this simple tent useful in various cases, as in dilating small openings in scrofulous patients, enlarging sinuses, fistulæ, &c., where, in cachectic habits, the loss of blood is to be scrupulously avoided. In 1827, there was a case of artificial anus in the Glasgow Royal Infirmary, which was threatened with death from inanition, the fæces escaping at a part of the gut where the process of assimilation was incomplete. Attempts were made to stop the escape of the contents of the gut, which was sound, except on the outside, and therefore did not require the use of Dupuytren's ingenious instrument. Plugs of conical-shaped sponge, cylinders of lint, with graduated compresses, and a truss, or bandage, were tried, but still the tent could not be steadily retained without pressing against the posterior part of the gut, and obstructing the passage, more or less, forcing out the fluid fæces by the wound, and hindering cicatrization. An instrument was suggested, which might at once fill the external opening, and by a spring or elastic loop pushed through it, distend the circle of the gut, and allow the fæces to pass onward. This scheme, however, failed, owing to the difficulty of procuring a substance of proper elasticity. I am confident that a thinned piece of whalebone would have accomplished the desired end.

Perhaps these hints may be useful to others, and by giving them a place, when convenient, in the MEDICAL GAZETTE, you will favour, sir,

Your obedient servant,

J. B. THOMSON.

Alloa, July 24, 1836.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

On the Efficacy of Carbonic Acid Gas in the Diseases of Tropical Climates; with Directions for the Treatment of Acute and Chronic Stages of Dysentery. By JOHN PARKIN, M.R.C.S. late of the H. E. I. C. Service, &c. 8vo. pp. 64.

WITHOUT much ceremony the author enters at once *in medias res:* he proceeds to describe the causes, remote and proximate, of all maladies, and comes forthwith to the conclusion that *malaria*, or "a gaseous *or other* substance generated in the bowels of the earth, and afterwards becoming diffused throughout the surrounding atmosphere," is the "single and almost universal cause of those diseases to which the human race is subject." He quotes Dr. Macculloch with much deference, and finds passages in corroboration of his opinions in the writings also of other authors. We have then an account of the treatment which he has been led to adopt, and which consists chiefly, if not solely, in the exhibition of carbonic acid gas. It must be confessed that these views of pathology and practice, *if true*, must simplify greatly the business of medicine. But, sceptics that we are, we have read through the pamphlet without being convinced.

The forms in which the carbonic acid is administered by Mr. Parkin are effervescing draughts, inhalation, and injection. For intermittent fever, the draughts are sufficiently efficacious, as we see by the following case.

"Rita Garcia, when I visited her, in February 1835, was labouring under a quotidian ague, and had been in the hospital of Alicante a month,—during which time the quinine and other tonics were administered. The disease had existed between *ten and eleven months*, having proved rebellious to the various remedies that had

been employed, but the paroxysms were now shorter and less violent than before her admission. There was considerable debility, with great emaciation; and she complained of pain at the pit of the stomach, oppression at the chest, and want of appetite.

"The quinine was ordered to be suspended, and thirty grains of the carbonate of soda, with twenty of tartaric acid, to be taken in a state of effervescence, an hour before the usual time of the accession, repeating the dose every quarter of an hour until four or five had been taken. The paroxysm was less severe than before, and of shorter duration; but as symptoms of fever presented themselves on taking the third dose, the medicine was suspended.

"On the following day, the patient took the draught at the same time, and repeated it every half hour until four doses had been taken. Coldness of the extremities, followed by a slight and temporary heat of surface, was alone experienced.

"The same plan was pursued on the third and fourth days, without the patient experiencing any unpleasant symptoms, or the least return of the disease. She also remarked that the pain and oppression at the chest were relieved, and that the appetite had returned.

"The medicine was then continued in the same quantity for a week, at which time, no return of the disease having been observed, the patient was consigned over to the charge of the attendant physician."

Thirteen similar instances are adduced; and then the author expresses a hope that his proposition has been sufficiently established, viz.—"That carbonic acid is capable of neutralizing the poisonous matter termed malaria, and that it remedies the effects witnessed in the various diseases produced by its deleterious influence, when present in the human body."

Under the head of Dysentery, we find a passage explanatory of the author's views of the nature of that disease—if, indeed, any explanation be necessary, after the general summary of his opinion given above. Having described the preliminary symptoms, to these, he says, "succeed, after a given time, horripilations, chills, or rigors—marking the transit of the same matter [the *malaria*] through the pulmonary organs, and corresponding to the cold stage of ague. And lastly, and in succession to the above, commence the true dysenteric symptoms, an effect of the *propulsion of the poison into the arterial system, and its detention in the capillaries of the intestinal canal.* But, although this circumstance—the propulsion of the poison to the intestinal canal—makes the difference, and, in point of fact, the only difference, between dysentery and fever, it is seldom that the whole of the matter is conveyed to this part of the body; a given portion is, in the majority of cases, also present in the capillaries of the skin, where it produces those symptoms of fever so generally the accompaniment, to a greater or less extent, of the dysenteric affection."

The author of course has no faith in the ultimate efficacy of calomel, or the other remedies commonly employed: he thinks that nothing less than *a specific* can radically cure the disease. This specific, or "antidote," is carbonic acid gas, which "neutralizes and renders inert the *morbific matter*, the cause of all the dangerous or unpleasant symptoms."

By means of a stop-cock and bladder "the antidote is brought into direct contact with the poison;" in other words, the gas (in a diluted state, of course) is "introduced into the lungs by inhalation." But we must allow the author himself to describe his ingenious method of introducing it into the bowels.

"For the purpose of introducing the remedy into the intestines, in order that by its absorption the portion of poison contained in the abdominal veins may be neutralized and rendered innocuous, one of two modes may be adopted. The carbonic acid can be introduced alone, from a bladder previously filled with the gas from some receptacle wherein it has been extricated; or else a solution of tartaric acid and carbonate of soda may be injected at the moment of their admixture, and in combination with the gas then extricated. For this latter purpose, a bladder, furnished with a stop-cock, may be employed; into which is to be poured a solution of tartaric acid, in the proportion of a drachm to three or four ounces of water. The fluid being allowed to gravitate to the bottom of the bladder, a string should be tied tight round the centre and above the solution, so as to prevent the escape of any portion of the fluid into the upper and empty part of the bladder. A solution of carbonate of soda, in like quantities and proportions, must then be poured into the empty space, and the stop-cock turned. A gum elastic pipe, made with a brass receiver to fit the top of the stop-cock, being introduced into the rectum, and the bladder attached, the handle

of the cock may then be turned, and an interval allowed (after the string has been detached) for the ascent of a portion of the gas which is extricated,—when the remainder, with the solution of salt, can be injected into the bowels in the usual manner. The temperature of the fluid will of course be regulated as for other injections—being under, rather than over, the degree of heat generally employed in states of health, or in other diseases, as the contact of hot fluids to the inflamed surface of the intestine is at first unpleasant, or even painful, and may therefore prevent the retention of the enema for a sufficient period to ensure the absorption of the gas."

There is only one other peculiarity in the author's practice remaining to be noticed — namely, that which he uses in "the chronic stages of dysentery;" sulphate of zinc. He employed the same remedy in influenza, where its effect seemed "magical"; also in recoveries from attacks of the epidemic cholera: but in the chronic form of dysentery, he conceived such a medicine to be peculiarly indicated—as an astringent, a tonic, and an excitant. His formula is from one to five grains of sulphate of zinc, in an ounce of infusion of quassia, or rose-water, with the addition of a few drops of camphorated tincture of opium, given two or three times a day; not omitting, however, the carbonic acid, in the shape of effervescing draughts.

Ten cases illustrative of this mode of practice are appended; but we cannot find room for any of them, nor, indeed, will Mr. Parkin expect that we should, when we have already confessed that he has not succeeded in making us converts to his views.

MEDICAL GAZETTE.

Saturday, August 13, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

NEW DUTIES OF MEDICAL WITNESSES.

THERE cannot be a stronger example of the indifference produced by habit, than that afforded by medical men in reference to their proceedings in courts of justice. The instances are every day becoming more and more multiplied of their presence being imperative on trials civil and criminal, and on inquests without number, which more or less engross the public attention. Yet, if we judge from common report of what takes place upon these occasions, nothing can be less calculated to reflect credit on the profession. The reports, no doubt, are often incorrect, and such gross exaggerations are sometimes found to be contained in them, as are sufficient to show that little or no confidence can be reposed in our ordinary sources of information. But then the parties personally concerned in the matter are perfectly apathetic, even where it would seem indispensable that they should correct the errors publicly laid to their charge: their only wish would seem to be, that the proceedings should be hushed up in oblivion.

We have sometimes been a good deal puzzled by this conduct: occasions have arisen when it was incumbent on us to take notice of certain affairs occurring in the courts: we were obliged to refer to the newspapers for our authority, and no sooner have we held up the glaring things there met with for the censure of our readers, than we have been informed that our remarks were unwarrantable — that the newspaper reports were erroneous, and that we should have taken pains to inquire further before we offered any strictures. This has actually happened in several instances, both in respect to civil and criminal cases; and our only defence has been to point out the source from which our *facts* were borrowed, being ready, of course, to incur whatever responsibility attached to our inferences and observations.

We have always thought, and we be-

lieve there are few readers who will not agree with us in opinion, that good reports of the evidence given by medical men in courts of justice are most desirable. Not only would they prevent the possibility of scandal occurring to the profession from the inaccuracies commonly committed, but we should thereby be provided with a body of information in a practical shape, of the highest value to all who should afterwards find themselves summoned as witnesses. As matters stand, there is comparatively little, even in the law reports, to serve as precedents for medical referees: of what takes place in the ecclesiastical courts there is almost nothing known; and in criminal trials relating to certain capital felonies, all that might be serviceable to the profession is suffered to be irrecoverably lost. This is injurious both to medical men and to the public. It is true that the interests of morality demand that the facts elicited in many cases should not be made common through the ordinary channels; but it is injurious to the cause of justice that they should be wholly suppressed. Discussion is precluded: and when similar circumstances again arise, the whole matter has to be treated *de novo*. We could instance several questions of medico-legal import on which not the least light has been thrown, though they have again and again come under the consideration of our courts of justice,—nay, with regard to which the most contradictory conclusions have been arrived at,—solely because they had not the benefit of that deliberate discussion and determination which a fair statement of all the facts of the case would necessarily lead to.

It is useless to hope for any amelioration in this respect from the ordinary newspaper press: the individuals who supply reports to the daily prints are generally incompetent to seize those more delicate medical facts which come out in evidence, and on which the turning of the scale mainly depends. Medical men must themselves supply an account of their evidence in those important cases, for the information and satisfaction of their professional brethren. If it were only for the sake of protecting their own character, they ought to do it; though we own that the apathy they have on most occasions evinced, when suffering even the greatest absurdities to be attributed to them, rather than be at the pains of removing the imputation, leaves us little hope of exciting them on that head.

When we recommend that medical witnesses should be their own reporters, we intimate, of course, that the professional journals are the proper depositories of their evidence: there those facts may be given in detail which the public generally cannot appreciate, but which may be referred to by the competent, in the event of there being any inducement for further and more particular inquiry.

The members of the profession ought not to shrink from this duty: nor should any of them claim exemption from its performance, on the ground of being but superficially acquainted with matters of legal medicine. In this country, where there has never yet been recognized a distinct order of practitioners, destined to the office of elucidating difficulties of a medico-legal nature arising in courts of justice, the law presumes *every* medical man competent to the task: whence it is obviously the bounden duty of every practitioner to be prepared for the discharge of such functions. True it is, that many have escaped the necessity of appearing before the public in the character of medical jurists; what with the limited powers of the coroner to procure the assistance

of men of standing in the profession—his inability to remunerate them for loss of time, and want of power to insist on having their opinion without compensation—and what with the incapacity of juries as generally constituted, and their indifference respecting the subjects usually submitted to them—medical men of much practice have commonly been able to evade this sort of public service. But how long will excuses of this nature serve their turn? A new order of things will most probably soon arise, in which it will be incumbent on every practitioner to hold himself in readiness for the exercise of medico-legal functions.

It will doubtless be understood that we allude to the new legislative measure which is in progress. Under the operation of the expected Act "for providing for the attendance and remuneration of medical witnesses at coroners' inquests," the whole of the system which has hitherto prevailed will be altered. Instead of its being optional with medical men, as it has been in a great measure, whether to attend or not in the case of inquests, they must now appear on such occasions in the light of servants of the public: they will be remunerated indeed for their time and trouble, but then they can no longer lay claim to the merit of being volunteers: a special duty, in fact, will henceforth devolve upon the medical profession, and every member must at his peril be prepared to discharge it.

We shall abstain at present from entering more particularly on the bearings of the new bill: when it passes into a law, as we presume it speedily will, we shall probably have some further practical remarks to make on it. Our motive for alluding to it just now is sufficiently obvious. If medical men have hitherto, with questionable propriety, contrived to meddle as little as possible with medico-legal affairs—if, on being obliged to meddle with them, they have sought to evade the responsibility of the opinions given in court, by affecting an apathy in regard to the mode in which those opinions were laid before the public and the profession,—they must henceforth prepare to find themselves in a new position. When the medical witness attends in court, and is understood to appear there at the public expense, he is clearly public property: he has no peculiar courtesy to expect—no special indulgence to claim: he must be prepared to have his views and sentiments, regarding the question on which he is summoned, canvassed and submitted to the ordeal of public scrutiny; and he will be made answerable for the opinions which are publicly announced as his.

Under such circumstances, it will not, we trust, be deemed presumptuous in us to urge once more the necessity of being prepared for the exercise of what to many will probably be a *new* function. No excuse or exemption can well be demanded on behalf of any individual: the medical man, whoever he may be, must proceed to act to the best of his ability,—his own reputation, that of the profession to which he belongs, together with the interests of public justice, will be involved in the manner in which he acquits himself. He will therefore doubtless be impressed with the propriety of doing that cheerfully, and with a good grace, which necessity may some day in a rougher mood require of him. The apathy to which we have already sufficiently alluded may no longer be endured; nor may measures be neglected whereby misconception in matters of vital interest to the community may be removed. We can promise, for our part, that no exertion shall be spared whereby those affairs which have a common relation to the profession and the public may be kept on a well-defined and proper footing.

—

MEDICAL PROFESSORSHIPS.

LONDON UNIVERSITY.

It is said that Dr. Sharpey, of Edinburgh, has been appointed joint Professor of Anatomy, in the room of Dr. Quain. There are various *on dits* as to the minor arrangements—as that some portion of the course is to be assigned to Dr. Grant and Dr. Carswell; but for the accuracy of these we cannot vouch. It is, we believe, certain that some difference of opinion has existed between the members of the Medical Faculty and the Council, as to the best mode of supplying Dr. Quain's place: one of the Council was very anxious to procure the election of a distinguished anatomist in the Borough, but without success. A contemporary, who has taken Dr. Grant under his particular patronage, has been writing furiously in favour of his protegé, having apparently thrown his darling *concours* overboard to make way for him. The plan of having two joint professors is certainly a questionable one; but the idea of uniting three or four men of different opinions, manners, and tempers, in the performance of a task requiring the most cordial co-operation, is so very preposterous, that we can scarcely suppose its adoption possible.

KING'S COLLEGE.

After the remarks which we felt ourselves called upon to make in our last number regarding the conduct of Mr. Mayo, in canvassing for an appointment in a rival school, the sequel which we have now to add will not take many by surprise. A strong letter of remonstrance, we understand, was immediately addressed to him by his colleagues, in which the propriety of resigning his professorship was explicitly suggested to him. He did resign in consequence; though we are told that he has since attempted to recall his resignation. The decision now rests with the Council.

EASTERN PROVINCIAL ASSOCIATION.

OBJECTS OF ITS FOUNDERS.

To the Editor of the Medical Gazette.

Sir,

I confess that I perused with regret your leading article of the 9th of July, in which you expressed an unfavourable opinion of the proceedings of the Eastern Provincial Association, believing, as I do, that this opinion is founded on an imperfect view of the case. As I was one of a deputation which proceeded to Manchester "to effect a junction between the two Societies," and am well acquainted with all the facts, you will, I trust, excuse me if I endeavour to place the subject in its true light before the members of both Societies.

As I had an opportunity of answering the objections of the Bath Council, at a conference with a Committee of the General Association, and of explaining to them the views of the Eastern Society, and as the report made by that Committee, with the courtesy the deputation received, were, in my humble opinion, flattering to the Eastern Association, and favourable to its wish for a junction, I shall forbear to make any comments on the report of the Bath Council, lest I should unintentionally excite any renewed opposition to our complete junction.

I trust I convinced the Committee that it was the earnest desire of the Eastern to connect itself with the parent society, as far as all the great objects of union are concerned. We do not wish there should be an Eastern, except as a branch of the General Association: we do not seek to reduce, but hope we should be able to add to its pretensions: we do not contemplate any division of interests, but pledge ourselves to keep our subscription at the same amount as theirs, to abide by their laws, and to acknowledge their Council: we earnestly wish to have one great Association; but we may yet be of opinion, that, as regards local financial matters, and annual meetings, branch Societies of the *nature* and *extent* of ours are highly desirable.

The excellent and highly-talented founder and zealous Secretary of the Association, has already found it quite impossible to collect the arrears; and I feel certain even his indefatigable industry will be insufficient to manage the affairs of this vast Society without assistance in several localities. We possess great advantages in this respect; our Secretary is in constant communication with all parts of our district, which are already supplied

with Benevolent Associations and Bank Societies.

We cannot, in your words, propose "to disunite" ourselves from, but, on the contrary, sincerely desire to unite ourselves with, the General Association. We do not offer terms without which we propose to remain separate; for we have so modified our terms (which were devised merely as a basis) as to remove all objections. You have selected a tree and its branches as emblems of the two Societies; but this comparison does not, in my judgment, hold good: I would rather compare the Eastern Society to a river arising in what, I am free to confess, is at present an unpropitious soil, and having pursued a straight course, increased by several springs, it attains a magnitude which promises extensive benefits, if it be united to a much larger and neighbouring river, lending the force and quality of its pure stream to swell the magnitude and increase the power of its neighbour, whilst, from the junction, it derives additional vigour, and a ready channel of communication to all parts of England.

"Convenience" is by no means our sole or even our principal object. If I failed in our conference to convince the Committee of the purity of the motives of the Eastern Association, of the sincerity of its desire for a junction, of the justice and propriety of its propositions, and of the mutual interest and advantage of our perfect union, then, sir, I was an inefficient deputy, an unfit representative, and deserve to bear the censure which my partial failure may entail upon me. But if I succeeded in any degree in forwarding a *satisfactory*, if not a speedy, adjustment, then I am sufficiently rewarded.—I am, sir,

Your obedient servant,

J. Godwin Johnson.

64, St. Giles'-street, Norwich,
August 8, 1836.

[We shall be extremely happy to hear of the thorough and cordial amalgamation of the two Societies. The tone of our correspondent's letter is very satisfactory, but we have still to learn whether the "consummation so devoutly to be wished" has been effected.—Ed. Gaz.]

GASTRIC JUICE.

Mons. H. Braconnot considers the gastric juice obtained from dogs to be composed of—

1st. Free hydrochloric acid in considerable quantity.
2d. Hydrochlorate of ammonia.
3d. Chloride of sodium in large quantity.
4th. Chloride of calcium.
5th. Chloride of iron.
6th. Chloride of potassium, a trace.
7th. Chloride of magnesium.
8th. A colourless and pungent oil.
9th. Animal matter soluble both in water and alcohol, in considerable quantity.
10th. Animal matter soluble in dilute alkalies.
11th. Animal matter soluble in water, but insoluble in alcohol; (the salivary matter of Gmelin).
12th. Mucus.
13th. Phosphate of lime.

M. Blondelot has endeavoured to produce artificial digestions, at the temperature of the human body, by filling glass tubes, some with a mixture of bits of meat and gastric juice, and others with meat and water slightly acidulated with hydrochloric acid: in both cases the flesh preserved its primitive form and fibrous texture whilst quiescent, but by the slightest movement it was converted into a homogeneous mass precisely similar to chyme produced in the stomach.—*Journ. de Pharm.* Feb. 1836. *Lond. and Edin. Phil. Mag. and Jour. of Science.*

DISLOCATION OF THE LOWER JAW.

We find the following communication in the *Indian Journal of Medical Science*:—

A patient was brought to me, apparently about 27 years of age, who had been ill of fever a month previous to the dislocation taking place.

On Thursday, the 4th of December last, he was attacked by vomiting and purging. During, or directly after, the act of throwing up, the third time, he found, to his dismay, that he could not shut his mouth. In this state he was taken to the Indigo Factory (Khal Boyla) of Mr. F. Harris, who recommended him to be carried to the station. Accordingly, he arrived here on Monday morning, 8th December, about 9 o'clock, A. M. His mouth was then as wide open as it possibly could be; tongue brown and dry; saliva dribbling over the chin; jaw perfectly immoveable. When asked whether he had any pain, he pointed to the depression, consequent from the dislocation, anterior to the meatus auditorius.

I first made an attempt to reduce it by twisting a portion of a towel round each of my thumbs, adjusting them on the last molares of either side, and then pressing backwards and downwards, and also depressing the anterior part of the jaw at the same time. The attempt failed completely, as the force used appeared not to

have the least effect; I then tried with a couple of quart bottle corks, cutting the circle, so that on one side a flat surface might be presented, thereby rendering it easier to keep them fixed in position, when placed on the surfaces of the posterior molar teeth. The man was now placed on his back, and I pressed the lower jaw, steadily upwards, but with no better success.

Seeing the prospect of an easy reduction was rather unfavourable, and bearing in mind the circumstances under which the dislocation had taken place, I gave my patient two grains of tartar emetic, and directed the painful parts to be rubbed well with laudanum, from which, he said, he found relief. In about fifteen minutes he complained of nausea; I then made another unsuccessful attempt, similar to the above. About five minutes afterwards he vomited; I again returned to the task, placing him on his back, and by a steady and very firm pressure of the chin towards the upper jaw, it gradually, though stubbornly, closed, the dislocation being perfectly reduced. A bandage, having a hole to let the chin through, was all that was requisite, besides telling him, if possible, to hold his peace for a few days. I saw him again the next morning, when he complained of a little stiffness only.

C. W. Fuller,
Assistant-Surgeon.

Kishnághur, Jan. 31, 1835.

IODINE FOUND IN VARIOUS MINERALS.

M. Arago mentioned, at a late meeting of the French Academy of Sciences, that M. Vauquelin had given the analysis of an ore of silver which contained a certain proportion of iodine. The fact was deemed very remarkable, but unluckily nothing was known of the mineral, except that it had come from Mexico. This led M. Arago to procure specimens from the country just mentioned, and seek for information from gentlemen who visited South America. He ascertained that the fact had also been noticed by M. Delrio, of Mexico, and that the mine whence the ore was obtained was that of Albadaros. Iodine is also found in some of the ores of lead in the same situation; and in two plants growing far inland, one of them a species of aloes.—*Gazette Médicale.*

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The next meeting of this learned society will take place at Bristol, during the week commencing Monday, the 22d inst. The committee will be on the spot the Saturday before, in order to make the necessary arrangements.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

August 11, 1836.

Thomas William Kenby, Manchester.
Edward Stokes Leete, Thrapstone.
William Percival, Northampton.
Alexander Orme.
Thomas Buxton, Park Nook, Derbyshire.
Edward Griffith, Abergele.
William Henry Dry, Oxford.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *Aug.* 9, 1836.

Abscess	2	Heart, diseased	1
Age and Debility	45	Hooping Cough	4
Apoplexy	9	Indigestion	1
Asthma	8	Inflammation	28
Cancer	2	Bowels & Stomach	11
Childbirth	5	Brain	7
Consumption	45	Lungs and Pleura	3
Convulsions	42	Insanity	3
Croup	4	Liver, diseased	10
Dentition or Teething	12	Measles	8
Diarrhœa	1	Mortification	5
Dropsy	20	Paralysis	1
Dropsy on the Brain	10	Rheumatism	1
Dropsy on the Chest	1	Small-pox	2
Epilepsy	1	Thrush	1
Fever	7	Tumor	1
Fever, Scarlet	6	Unknown Causes	9
Fever, Typhus	1		
Fistula	1	Casualties	11
Hæmorrhage	1		

Increase of Burials, as compared with the preceding week . . } 90

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N Longitude* 0° 3′ 51″ W. *of Greenwich.*

Aug. 1836.	Thermometer.		Barometer.	
Thursday . 4	from 53	to 71	29·76	to 29·83
Friday . . 5	56	72	29·89	29·95
Saturday . 6	54	67	30·02	30·06
Sunday . . 7	46	70	30·11	Stat.
Monday . . 8	50	72	30·08	30·09
Tuesday . . 9	44	69	30·11	Stat.
Wednesday 10	42	72	30 11	30·10

Prevailing winds, S.W. and N. by E.

Generally clear, except the 4th and 5th. A few drops of rain on the morning of the 4th.

Charles Henry Adams.

NOTICES.

Dr. Inglis cannot reasonably expect us to send our correspondents to another journal in order to read *his* writings.

We never report dinners; otherwise we should be most happy to oblige the respectable correspondents who have applied to us.

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, AUGUST 20, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XLVII.

Having in our last lecture finished the genus Cinchona, I proceed now to notice some other medicinal substances obtained from the family Cinchonaceæ; and first of

Ipecacuanha.

Under this name are imported into Europe the roots of several South American plants. Those which it will be necessary for me to notice, are—

1. Cephaëlis Ipecacuanha, which yields the root called *annulated ipecacuanha.*
2. Richardsonia scabra, which furnishes the *undulated ipecacuanha.*
3. Psychotria emetica, from which is obtained the *striated ipecacuanha.*

In the "*Specimen Materiæ Medicæ Brasiliensis*" of Martius, two other genera of Cinchonaceous plants are mentioned as growing in the Brazils, and as being emetic: they are Chiococca and Manettia, but will not require farther notice from me.

1. *Cephaëlis Ipecacuanha.*

History.—Michael Tristram (referred to in Purchas's Pilgrims) is the first person who alludes to ipecacuanha. In 1648, Piso noticed it as a remedy commonly employed in the Brazils against alvine fluxes. Great confusion existed for a long time respecting the plant yielding annulated ipecacuanha, but in 1800 Dr. Gomes returned from the Brazils, and brought with him the plant yielding it, and on which he published a dissertation at Lisbon. In 1802, Brotero described it in the Transactions of the Linnæan Society, under the generic name of Callicocca, which most botanists now unite with that of Cephaëlis.

Botanical description.—The root is perennial, annulated, simple, or dividing into a few diverging branches, flexuous, from 4 to 6 inches long, and, in the fresh state, pale brown externally. The stem is somewhat shrubby, ascending, 2 or 3 feet long, and emitting runners. The leaves are obovato-oblong, rarely more than 4 or 6 in number, placed at the end of the stalk and branches, and having pubescent petioles, which are connected to each other by erect stipules, membranous at the base, and divided above into 4 or 6 setaceous segments.

Fig. 120.—*Cephaëlis Ipecacuanha.*

The peduncles are solitary. The inflorescence is a semi-globose involucred capitulum, composed of from 8 to 12 flowers. The calyx is monosepalous, with five short teeth: the corolla monopetalous, funnel-shaped, five cleft Each flower has a partial involucrum, or bractea. There are five stamina; the ovarium is inclosed by the calyx; the style is filiform; the stigmata are two in number, linear and spreading. The fruit is a soft fleshy

bilocular berry, of a violet black colour, crowned by the calyx, and containing two seeds (*nucules*) with horny albumen. In the Linnæan arrangement the genus Cephaëlis belongs to *Pentandria Monogynia*.

Geography.—This plant grows in moist shady situations in the Brazils, generally between the 8° and 20° south latitude. It is found abundantly in the valleys of the granitic mountains, which run (more or less distant from the sea) through the provinces of Rio Janeiro, Espirito Santo, and Bahia: it is also met with in Pernambuco. Humboldt and Bonpland found it on the St. Lucar mountains of New Grenada.

Collection.—The roots are collected at all seasons of the year, though more frequently from January to March inclusive; and as no care is taken in the cultivation of the plant, it has become scarce around the principal towns. Those Brazilian farmers who reside in the neighbourhood of the roots, carry on considerable commerce with it. The native Indians also are very assiduous in the collection of it. They sometimes leave their villages for two months at a time, fixing their habitations in those places in which this plant abounds. They cut the roots from the stems, dry them in the sun, and pack them in bundles of various sizes and forms.

The roots constitute the *annulated*, *genuine*, or *officinal ipecacuanha*, and which is sometimes termed *Brazilian* or *Lisbon ipecacuanha*. M. Aug. de St. Hilaire says it is the only species exported from Rio Janeiro. It comes over in bales and barrels.

Characters of the root.—The root occurs in pieces of three or four inches long, and about the size of a small writing-quill; variously bent and contorted; simple or branched. It has a knotty appearance, in consequence of a number of deep circular fissures about a line in depth, and which extend inwardly to a central ligneous cord, so as to give the idea of a number of rings strung upon a thread: hence the term *annulated*, applied to this root. These rings are unequal in size, both with respect to each other and to different parts of the same ring. This root has a resinous fracture. Its substance consists of two parts: *one* called the cortical portion, which is brittle and resinous, of a horny appearance, with a greyish or brownish-grey colour—sometimes whitish; and a *second* called meditullium, and which consists of a thin, yellowish-white, woody, vascular cord, running through the centre of each piece. In 100 parts of good ipecacuanha, there are about 80 of cortex and 20 of meditullium. Ipecacuanha root has an acrid, aromatic, somewhat bitter taste, and a slightly nauseous, but peculiar, odour. Three varieties are described—the *brown*, the *red*, and the *grey*.

Variety 1.—*Brown annulated Ipecacuanha* of Lemery and Richard; *blackish-grey annulated ipecacuanha* of Guibourt; *grey annulated ipecacuanha* of Merat. The greater part of the ipecacuanha of commerce consists of this variety. Its epidermis is more or less deeply brown, sometimes even blackish; its fracture is grey, or brownish; its powder is grey. It has been analysed by Pelletier, with the following results:—

Analysis of brown Ipecacuanha.

Cortical portion.		Meditullium.
Emetina	16	1·15
Odorous fatty matter	2	traces.
Wax	6	—
Gum	10	5·00
Starch	42	20·00
Ligneous matter	20	66·60
Non-emetic extractive	0	2·45
Loss	4	4·80
	100	100·00

Variety 2.—*Red annulated ipecacuanha* of Richard; *reddish-grey annulated*, of Guibourt; *red-grey ipecacuanha* of Merat. It differs from the preceding, by the lighter and reddish colour of its epidermis, by its less powerful odour, and by its want of aromatic taste. Sometimes it has, when broken, the same horny and semi-transparent quality of the brown ipecacuanha, but frequently it is opaque, dull, and farinaceous; in which case it is generally less active. These differences probably depend on the nature of the soil in which the plant grew. This variety has been analysed by Pelletier.

Analysis of red annulated Ipecacuanha.

	Cortical portion.
Emetina	14
Fatty matter	2
Gum	16
Starch	18
Ligneous matter	48
Loss	2
	100

Variety 3.—*Grey annulated ipecacuanha* of Richard; *grey-white ipecacuanha* of Murat; *greater annulated ipecacuanha* of Guibourt. The colour of this variety is liable to variation: for the most part it is greyish-white, but occasionally is reddish, like the last variety. It occurs in pieces of larger diameter than either of the foregoing kinds, with fewer, more irregular, and less prominent rings. It is merely a portion of the root of the Cephaëlis, which has become more developed, either from meet-

ing with excess of nourishment or from some other circumstance. It has not been analysed.

2. *Richardsonia scabra.*

Botanical description.—This plant is the *Richardsonia Brasiliensis* of some writers, and grows in the provinces of Rio Janeiro, Minas Geraës, and other parts of the Brazils. The root has a jointed appearance, from constrictions which are remote from each other; it is perennial, simple, or branched, and, in the fresh state, white and fleshy: the stems are several from one root, hairy; leaves opposite, with short petioles and membranous hairy stipules; flowers twenty, or more, in hemispherical heads, with a six-cleft monosepalous calyx, and a white tubular corolla. It belongs to *Hexandria Monogynia* of the Linnæan arrangement.

Physical characters of the root of commerce.—The root of this plant constitutes the *undulated ipecacuanha* of Guibourt,—the *amylaceous* or *white ipecacuanha* of Merat. It is about the same size as that of the annulated species: is tortuous, attenuated at the extremities; externally of a greyish-white colour, becoming brownish by age. It presents no rings properly so called, but is marked by semi-circular grooves. It consists, like the annulated species, of a thin yellowish meditullium, and a cortical portion. The fracture of the root is not at all resinous, but farinaceous, and of a dull white colour, the fractured surface presenting, when examined by a magnifier, numerous shining pearly, probably amylaceous, spots. The odour is musty.

Chemical composition.—Pelletier has analysed this species of ipecacuanha: the following are his results:—

Emetina	6
Fatty matter	2
Starch / Ligneous matter (very little)	92
	100

3. *Psychotria emetica.*

Botanical description.—This plant is a native of Colombia, Peru, and probably of other parts of South America. It has a fibrous root; a cylindrical, finely pubescent stem, about 18 inches high; opposite lanceolate leaves, pubescent on their lower surface, with short petioles, and two stipules; flowers in racemes,—calyx monosepalous, five-toothed,—corolla monopetalous, white, five cleft,—stamina, five,—stigma, two-cleft; fruit a small ovoid bluish drupe, containing two seeds. The class and order in the Linnæan arrangement is *Pentandria Monogynia.*

Physical characters of the root of commerce.—The root of the Psychotria emetica is the *striated ipecacuanha* of Richard, Guibourt, and Merat: the *black* or *Peruvian ipecacuanha* of some authors. It consists of cylindrical roots, which are neither annulated nor undulated, but longitudinally striated. They have deep circular intersections at various distances, giving them the appearance of being articulated; and when slight force is used, they fracture at these parts.

As met with in commerce, they have externally a blackish-grey colour, with a brownish tinge; but when fresh, they are said to be dirty reddish-grey. Their fracture is resinous: the meditullium, or central ligneous cord, is yellowish, and perforated by numerous holes, which are very visible by a magnifier: the cortical portion is softish, easily separable, and of a greyish-black colour, becoming much deeper when moistened. Its powder is deep grey.

Composition.—This root has been analysed by Pelletier, and found to contain the following substances:—

Emetina	9
Fatty matter	12
Gallic acid	a trace
Gum / Starch / Ligneous matter	79
	100

False ipecacuanha roots.—Under the name of false or bastard ipecacuanha roots are included those roots which have been introduced into commerce under the name of ipecacuanha, but which do not belong to the family Cinchonaceæ. Thus the root of the Ionidium Ipecacuanha (a plant belonging to the family Violaceæ) is called *false Brazilian ipecacuanha:* it contains five per cent. of emetina.

Chemistry of ipecacuanha roots.—Two substances which have been detected in these roots deserve our examination;—I allude now to emetina, and the fatty matter of ipecacuanha. The first is the vomitive principle,—the second the odorous matter.

1. *Emetina.*

History.—This substance was discovered by MM. Magendie and Pelletier, in 1817. They termed it "*la matière vomitive,*" or *emetine*, from *εμεω, I vomit.* When first procured, it was in an impure form; and as it is sometimes used even now in this state, we distinguish it by the name of *coloured* or *impure emetine.*

Properties.—Pure emetina is white (when not absolutely pure it has a greyish yellow tinge), pulverulent, inodorous, with a slightly bitter taste; fusible; very slightly soluble in cold, but much more so in hot, water; very soluble in alcohol and æther,

and soluble in acids, the acidity of which it does not entirely destroy. It restores the blue colour of litmus which has been reddened by an acid. I find that the yellowish white emetina, sold in the shops under the name of pure emetina, is coloured red by nitric acid, the red colour being much deepened on the addition of ammonia. An alcoholic solution of iodine added to an alcoholic solution of emetina produces a reddish precipitate, which is probably iodide of emetina. Tincture of galls precipitates copiously solutions of emetina. The effect of these reagents on emetina is similar to their effect on morphia; but from this last substance emetina is distinguished, by not altering the colour of the salts of iron.

Composition.—According to Pelletier and Dumas emetina is composed of—

Carbon	64·57
Hydrogen	7·77
Nitrogen	4·30
Oxygen	22·95
	99·59

It is impossible to determine with any accuracy the atomic composition of emetina from this analysis, since the saturating power of the alkali has not been ascertained. Here are two formulæ:—

	Berzelius.	Gmelin.
Carbon	37 atoms	35 atoms
Hydrogen	27 atoms	25 atoms
Nitrogen	1 atom	1 atom
Oxygen	10 atoms	9 atoms

Salts of emetina.—The salts of emetina are slightly acid and uncrystallizable, but form gummy masses, in some of which only do we occasionally find traces of crystallization.

Physiological effects.—The following are stated by Magendie as the effects of *impure* emetina:—

(*a.*) *On animals.*—From half a grain to two grains given to cats and dogs caused at first vomiting, then sleep. In doses of from six to ten grains, vomiting, sleep, and death, took place. Dissection shewed inflammation of the pulmonary tissue, and of the mucous membrane of the alimentary canal, from the cardia to the anus. The same effects (namely, vomiting, sleep, and death) were observed when emetina was dissolved in water, and injected into the jugular vein, into the pleura, into the anus, or into the tissue of the muscles.

(*b.*) *On man.*—In doses of a quarter of a grain it excites nausea and vomiting: a grain and a half, or two grains, taken fasting, caused continued vomiting, and decided disposition to sleep.

The effects of *pure* emetina are similar, but more energetic. In one case one-sixteenth of a grain caused vomiting in a man 85 years of age: two grains are sufficient to kill a dog.

Use of emetina.—Emetina has been proposed as a remedial agent,—as a substitute for ipecacuanha, all the advantages of which it is said to possess in a much smaller dose, and without the unpleasant taste and odour which the root is known to have. I confess, however, I think very little advantage is likely to be gained by the substitution. When we wish to give emetina in a liquid form, it may be readily dissolved in water by the aid of acetic or dilute sulphuric acid.

2. *Fatty Matter of Ipecacuanha.*

Preparation.—This substance is extracted from ipecacuanha by æther.

Properties.—It is of a fine brownish yellow colour, soluble in alcohol and æther, to both of which it communicates a yellow colour. Its odour is very strong, and similar to that of the essential oil of horse radish: it becomes insupportable when heat is applied, but is weak and analogous to that of the ipecacuanha root when diluted: its taste is acrid; it is heavier than alcohol.

Composition.—This fatty matter consists of two substances: 1st, a very fugacious volatile one, which is the odorous principle of ipecacuanha root; 2dly, a fixed fatty matter (which some chemists have mistaken, when mixed with emetina, for resin), having little or no odour.

Effects. — Notwithstanding its strong taste and odour, it does not seem to have any effect on the stomach. Given in large doses to animals, it produced no sensible effect. Caventou took six grains at one time, but experienced no marked effects therefrom. Pelletier and Magendie swallowed some grains of it, and experienced a disagreeable impression on the throat, but it was temporary only.

Physiological effects of ipecacuanha. — If the powder, or dust, be applied to the eyes, or face, it acts as an irritant. Inhaled, it irritates the respiratory passages, and in some persons brings on an attack of spasmodic asthma. Mr. Roberts, surgeon, at Dudley, is affected in this way; and I have received from him the following account of his case:—

"If I remain in a room where the preparation of ipecacuanha is going on—for instance, making the pulv. ipecac. comp.—I am sure to have a regular attack of asthma. In a few seconds, dyspnœa comes on in a violent degree, attended

with wheezing and great weight and anxiety about the præcordia. The attack generally remains about an hour, but I obtain no relief until a copious expectoration takes place, which is invariably the case. After the attack is over, I suffer no further inconvenience. I have always considered that the attack proceeds from the minute particles of the ipecacuanha floating in the atmosphere, acting as an irritant on the mucous membrane lining the trachea and bronchial tubes." In some cases, the mere odour of the root seems sufficient to excite difficulty of breathing, with a feeling of suffocation.

There is one case recorded of poisoning by the incautious inhalation of the dust of ipecacuanha, in the process of powdering it, by a druggist's assistant. It is mentioned by Dr. Prieger, in Rust's Magazine. The patient, who was suffering with catarrh and cough, inhaled, during three hours, the dust from the root; in consequence of which, vomiting came on, followed by tightness at the chest. An hour after this, he complained of a sense of suffocation, and constriction of the trachea and throat: his appearance was pale and deathly. The physician who was called in, bled him, and gave assafœtida and belladonna, with temporary relief; but in five hours a fresh attack came on, with the most imminent danger of suffocation. A strong decoction of uva ursi, with the extract of rhatany, was administered, with almost immediate relief, and in one hour his breathing was much freer. He was able to leave the house in two days, but suffered several days with difficulty of breathing.

When swallowed in small doses, ipecacuanha promotes secretion, especially from the bronchial and gastro-intestinal membranes. In somewhat larger doses it causes nausea, and disposes to sweating. In still larger quantities it excites vomiting. It is one of the safest emetics that can be used; since it never excites inflammation of the alimentary canal, and therefore no danger is to be apprehended from the effects of an over-dose. The vomiting produced by it is not so violent as that brought on by tartar emetic, neither is it so long continued, nor attended with such nausea.

Ipecacuanha is supposed to have a specific influence over the pulmonary organs, and the nervous system. This opinion is principally founded on the statements made by Magendie respecting the operation of emetina, and which I have already mentioned.

As vomiting is excited by emetina, to whatever part of the body it be applied, it is inferred that the emetic operation of ipecacuanha is of a specific kind, and does not depend on the mere contact of its particles with the alimentary membrane.

Uses.—Ipecacuanha was first introduced into medicine as a remedy for dysentery and other alvine fluxes; and the following anecdote may be interesting, as connected with its introduction. Helvetius (at that time a young physician) attended with his master Afforty, a merchant named Grenier, or Garnier, who, when he recovered from his illness, gave to his physician, as a testimony of gratitude, some of this root, as a valuable remedy for dysentery. Afforty attached very little importance to it, but Helvetius tried it, and thought he had found in it a specific against dysentery. Numerous placards were placed about the streets of Paris, announcing to the public the virtues of the new medicine, which Helvetius sold without discovering its nature. Luckily for him, some of the gentlemen of the court, and even the Dauphin, the son of the King (Louis XIV.) were at this time afflicted with dysentery. Being informed by his minister Colbert of the secret possessed by Helvetius, the King deputed his physician Aquin and his confessor to arrange with Helvetius for the publication of the remedy. 1000 Louis-d'or was the price which was paid, after some trials had been made with it at the Hôtel Dieu, and which were crowned with the most brilliant success. Garnier now put in his claim for a part of the reward, saying that he, properly speaking, was the discoverer of the medicine. But the claim was not allowed, and subsequently Helvetius obtained the first medical honours of France. He wrote a treatise, describing the use of ipecacuanha in diarrhœa and dysentery.

The uses of ipecacuanha may be most conveniently examined under the following heads:—

1st. *In large doses as an emetic.*—The mildness of its operation adapts ipecacuanha to all those cases where our object is merely to evacuate the contents of the stomach. Thus it is well adapted for the diseases of children, on account of the mildness and certainty of its action. It is also exceedingly useful for adults: thus, in gastric disorders, to evacuate undigested acrid matters from the stomach,—to promote the passage of biliary calculi,—as a counter-irritant at the commencement of fevers,—in many inflammatory diseases, as croup, cynanche, hernia humoralis, and ophthalmia,—and as an evacuant in cases of narcotic poisoning. In some pulmonary affections (namely, acute mucous catarrh, asthma, and hooping-cough), ipecacuanha has been used as an emetic.

2. *As a nauseant*, ipecacuanha has been used in hæmorrhages, especially those from the uterus and lungs, and in diarrhœa and dysentery. The celebrity which it obtained in the latter disease led to its being called the *radix antidysenterica*. Practitioners who have written in its favour in this disease have not, however, been agreed as to the best mode of employing it: some give it in doses sufficient to occasion vomiting; others in small doses, to produce nausea, diaphoresis, or purging. Dr. Cullen and Sir George Baker consider it useful in this disease by acting as a purgative; while Moseley thinks it advantageous by relaxing the surface. A vast deal too much importance has, however, been given to its use in dysentery; and I believe a large majority of practitioners of the present day never think of employing it in this disease.

3. *As a sudorific.*—Combined with opium and sulphate of potash, under the name of *Dover's powder* (pulvis ipecacuanhæ compositus), it forms one of our most powerful and certain sudorifics, and is employed in a variety of diseases in which sudorific remedies are indicated, and where opium is not objectionable. Thus in rheumatism, in some forms of fever, in chronic diseases of the pulmonary organs, &c.

4. *As an expectorant.*—Small doses are given in pulmonary disorders, especially those of a chronic kind.

Administration.—The medium dose of ipecacuanha as an emetic is, in *powder*, about 15 grains, though in some constitutions a much less dose (4 or 6 grains, for example) is sufficient. A scruple, or even half a drachm, may, however, be given with perfect safety. A very commonly used emetic is 1 grain of tartar emetic, and 10 or 15 grains of powdered ipecacuanha. When vomiting has commenced, diluents should be exhibited. As a nauseant, two or three grains may be administered.

Ipecacuanha *lozenges* contain usually from $\frac{1}{4}$ to $\frac{1}{2}$ grain of the root, and may be used to promote expectoration.

An *infusion* of ipecacuanha may be administered as an emetic. It is made by digesting ʒij. of the powdered root in ℥vj. of boiling water, and, when cold, filtering. The dose of this is from one ounce to an ounce and a half. It may be used in cases of narcotic poisoning.

The *wine of ipecacuanha* of the London Pharmacopœia is, in fact, a tincture made with proof spirit. It requires to be given to the extent of half an ounce to act as an emetic in adults; but in infants half a drachm or a drachm may be repeated at intervals of a quarter of an hour, until vomiting comes on. As an expectorant it may be given to the extent of 40 or 50 minims, or even of a drachm, though this quantity will sometimes occasion nausea, or even vomiting.

Antidote.—In cases of poisoning by emetina or ipecacuanha, the antidote is solutions of some astringent substances, as of galls, or rhatany, or uva ursi, or catechu.

Uncaria Gambier.

This plant, sometimes termed *Nauclea Gambier*, is a climbing plant, a native of Pulo Penang, Sumatra, Malacca, &c. It belongs to the family Cinchonaceæ, and to *Pentandria Monogynia* in the Linnean arrangement.

By boiling the young shoots and leaves in water, and evaporating the decoction, an astringent extract is obtained, called *Gambier*, or *Gutta Gambier*. Now what is *Gambier?* Dr. Duncan, in the Edinburgh Dispensatory, and Dr. A. T. Thomson, in the London Dispensatory, state that the East Indian or Amboyna Kino, now met with in the shops, is the extract of the Nauclea Gambier; but this statement must, I think, be an error; for Hunter, who saw it procured, states that Gambier is either in little square cakes, or in round cakes or lozenges, and that its colour is whitish, though sometimes brownish. Now our Kino does not at all agree in these respects with the Gambier. I believe that one or two of the extracts, called in commerce Catechu, are identical with Gambier, but I leave my reasons for this opinion until another opportunity.

STELLATÆ, OR GALIACEÆ.

This order is distinguished from Cinchonaceæ by its square stems and verticillate leaves, which form a kind of star in their position around the stem. The only species in it requiring notice is

Rubia tinctorum.

History.—Theophrastus notices this plant under the name of ερευθεδανον: so also does Dioscorides and Pliny. In Beckmann's History of Inventions will be found a full historical account of it.

Botanical description.—Madder is a native of the south of Europe. Its root is perennial, horizontal, long, and branching, of a reddish brown colour, giving rise to several herbaceous tetragonal stems, which are furnished with hooked prickles. The leaves are sessile, lanceolate, on the keels and edges scabrous, verticillate, from four to six in a whorl; flowers yellow. It belongs to *Tetrandria Monogynia* in the Linnæan arrangement.

Physical characters of the roots.—The roots of commerce are cylindrical, about the

FIG. 121.—*Rubia tinctorum.*

thickness of a quill, branching, and of a deep reddish brown colour; they consist of an easily separable cortex, and of a ligneous meditullium, which in the fresh state is yellow, but by drying becomes reddish. The odour of the root is feeble, its taste bitter and astringent.

Chemical composition.—The most interesting of the chemical constituents of madder root are the colouring matters. The *red colouring matter* is termed by Robiquet and Colin, *Alizarine:* it is a crystalline substance, of an orange red colour, soluble in boiling water, alcohol, æther, fixed oils, and the alkalies. The *yellow colouring matter* has been denominated *Xanthine:* it is soluble in cold water.

Physiological effects.—Its effects are exceedingly slight: when applied to any part of the body its local action is hardly appreciable. When swallowed it has been said to be tonic, diuretic, and emmenagogue.

If animals be fed with it, the alizarine or red colouring matter becomes absorbed, and tinges the bones red. In young animals this effect is produced in a few days, but a longer time is required for old animals. The urine, sweat, milk, and other secretions, become tinged by it; and in birds the beak and claws are coloured. It is said not to colour those parts of the body in which the vital properties are very energetic: even the aponeuroses, tendons, and periosteum, are affected. The callus of a fractured bone does not become red so long as the inflammatory action is active. Tiedemann and Gmelin could not detect the colouring matter in the chyle, and the red tint of the serum prevented them ascertaining whether the Alizarine was in the blood.

Uses.—It was at one time a favourite remedy in jaundice. On account of its capability of tinging the bones red, it has been recommended in rickets and mollities ossium, on the supposition of its promoting the deposit of bone earth; but this supposition appears to be groundless. As an emmenagogue it has been recommended in uterine complaints, but there is no evidence of its having any influence over the uterus.

CAPRIFOLIACEÆ.

In this family we find only one plant requiring our notice;—this is the

Sambucus nigra.

The common or black elder tree is too well known, and of too little importance in a medical point of view, to require any detailed notice. It belongs to *Pentandria Trigynia* in the Linnæan classification.

In the Edinburgh and Dublin Pharmacopœias, the flowers, the berries, and the inner bark, are officinal substances; but in the London Pharmacopœia, the flowers only are mentioned.

1. *Flores sambuci.* — Elder flowers are disposed in cymes: they are cream-coloured, and have a faintish odour, considered by some pleasant, by others the reverse. This odour depends on a volatile oil, which at ordinary temperatures is solid. In the shops we meet with a distilled water, called *elder flower water*, which is impregnated with this oil. The *unguentum sambuci* of the London Pharmacopœia is prepared by boiling the flowers in lard, which extracts the volatile oil, and thereby acquires a pleasant odour. In a medicinal point of view it possesses no advantage over spermaceti ointment.

2. *Baccæ sambuci.*- By expression, elderberries yield a fine purple juice, usually denominated *elder rob.* This, by evaporation, forms the *succus spissatus sambuci nigræ;* which is regarded as cooling, laxative, and diuretic, and is used, diluted with water, as a refrigerant beverage in fevers and inflammatory complaints.

3. *Cortex interior sambuci nigræ.*—The liber or inner bark of the elder is purgative, and, in large doses, emetic. It has been used in dropsy. The dose is from ten grains to half a drachm, infused in wine. A decoction is made by boiling two drachms in half a pint of water, to a quarter of a pint; the whole of which may be taken at one dose.

VALERIANACEÆ.

This family contains only two species requiring notice.

1. *Valeriana officinalis.*

Botanical description.—This is an indigenous plant, from two to four feet high. The root is perennial, and consists of numerous long brownish fibres, which arise from an underground stem, or rhizome,

The aerial stem is hollow and striated; the leaves pinnated, the lower ones having long footstalks; the leaflets being lanceolate and serrated. The inflorescence is a corymbus; the corolla is monopetalous, superior, five-cleft, gibbous at the base, of a pale flesh colour. The stamina are three in number, inserted on the corolla. Ovarium inferior, oblong; style, filiform; stigma, trifid. The fruit consists of achenia, crowned with a feathery pappus. It belongs to *Triandria Monogynia* of the Linnæan arrangement.

Cultivation.—Valerian is cultivated for medicinal use at Ashover, in Derbyshire. At Michaelmas the leaves are pulled, and given to cattle, and the roots dug up, washed, and dried.

Physical properties of the roots.—The roots of commerce consist of numerous fibres, attached to one common head, or rhizome, of a pale brownish colour, having a strong and peculiar odour (very attractive to cats and rats), and a warm, bitter, subacrid taste.

Chemical composition.—The following are the constituents of valerian root, according to Trommsdorf:—

	Oz.	Drs.	Scr.
Volatile oil	—	1	1
Resinous extractive	2	—	—
Gummy extractive	1	4	—
Resin	1	—	—
Starch	—	2	—
Woody fibre	11	—	2
	16	0	0

The *oleum valerianæ*, or volatile oil of valerian, may be obtained by the distillation of the root (either fresh or dry). If procured from the fresh root, it is grass green; if from the old, brown. It has an aromatic, camphoraceous odour, analogous to that of the root: its specific gravity is less than that of water.

When valerian root is distilled with water, there comes over, besides the volatile oil and water, a volatile fatty acid, called *Valeric* or *Valerianic* acid. When pure, it is an oleaginous liquid; it unites with bases, forming salts, called *Valerates* or *Valerianates*, all of which, when neutral, are soluble in water. This acid consists of—

10 atoms carbon, 6×10	60
9 atoms hydrogen	9
3 atoms oxygen	21
1 atom anhydrous valeric acid	93

Physiological effects.—The operation of valerian is that of a stimulant—that is, in full doses it excites the vascular system, increases the frequency and fulness of the pulse and the temperature of the body, and promotes secretion and exhalation, especially from the skin, and sometimes from the kidneys.

It seems also to exercise a specific influence over the functions of the cerebro-spinal system: thus, given to cats, it produces a kind of intoxication; and in man, large quantities occasion scintillations, agitation and restlessness, giddiness, and, in some cases, even convulsions. Moreover, the occasional benefit derived from the use of valerian in disordered conditions of the nervous system, may be mentioned as another proof of its acting like the other agents which I have denominated cerebro-spinants. The active principle of valerian root is the volatile oil.

Uses.—It is now but little used, though formerly it was in great repute. It was employed in asthenic fevers as a stimulant; in various chronic affections of the nervous system—as epilepsy, chorea, and hysteria (especially the first), and as an anthelmintic.

Administration.—In *powder* it is exhibited in doses of from a scruple to a drachm. There is an *infusion of valerian* in the Dublin Pharmacopœia, prepared with two ounces of the root and seven ounces of water: the dose is one or two ounces. In the London Pharmacopœia there are two tinctures: the simple *tincture of valerian* is made with proof spirit, and the dose is two or three or more drachms. The *ammoniated tincture of valerian* is prepared by digesting the root in aromatic spirit of ammonia: its dose is one or two drachms.

2. *Nardostachys Jatamansi.*

A celebrated medicine and perfume among the ancients was the *Nard* (Ναρδος), usually termed *Spica nardi* or *Spikenard.* Dioscorides describes several kinds of it: one of them is the *Indian nard.* Nard was regarded as a stimulant medicine, especially with regard to the secretions; and as having a fragrant odour.

FIG. 122.—*Nardostachys Jatamansi.*

The mother plant of this perfume is the *Nardostachys Jatamansi* of Decandolle (the *Valeriana Jatamansi* of Sir W. Jones, and of Roxburgh). It is a native of Nipal, and is much esteemed in India for its odour and medicinal qualities. For much interesting information on this subject, I must refer to the work of my friend, Professor Royle, on the Natural History of the Himalaya.

COMPOSITÆ, OR SYNANTHEREÆ.

Botanical characters.—This family is one of the largest and most natural of the whole vegetable kingdom. The stems are usually herbaceous, but occasionally, though rarely, shrubby. The leaves are generally alternate, very rarely opposite, without stipules. The flowers are small, and are usually called *florets:* they are collected (commonly in great numbers) in heads or *capitula*, on an enlargement of the axis called a receptacle, which is surrounded by an involucre or calyx communis. From this arrangement the flowers are called compound, and hence the term *compositæ* applied to the family. The florets are sometimes furnished with bracteæ, called paleæ of the receptacle: the calyx adheres so closely to the ovarium that it cannot be distinguished from it, except sometimes at its limb, where it is divided (into bristles, paleæ, hairs or feathers) and constitutes the pappus. The corolla is monopetalous and superior; sometimes tubular, or funnel-shaped, then called flosculous; at other times it is elongated at one side, and is said to be strap-shaped, ligulate, or semiflosculous. The anthers cohere into a tube or cylinder; hence the term *synanthereæ* (from συν, *with*, and *anthera*), applied to the family by Richard, is a much more correct designation than that of Compositæ. From the same characters Linnæus constructed his class *syngenesia*, (from συν *with*, and γενεσις *generation*), and stamina whose anthers are thus connected are frequently denominated syngenesious. The ovarium is inferior, and contains a single erect ovule; the style is simple, and passes through the tube formed by the adhesion of the anthers. The fruit is one-seeded, and constitutes the achenium of Richard. The seed is erect, without albumen.

Division.—Jussieu divided this family into three sections.

1. *Cichoraceæ*, in which all the florets are ligulate.
2. *Cynarocephalæ*, or *Cynaraceæ*, in which all the florets are flosculous.
3. *Corymbiferæ*, or *Asteraceæ*, in which the florets in the middle (*disk*) of the capitulum are flosculous, while those of the circumference (*ray*) are ligulate.

To these three sections, a fourth has subsequently been added, called *bilabiate*. This division of Compositæ is, as Mr. Lindley has observed, "unobjectionable as far as it goes;" though it has not been found satisfactory to modern botanists. In lectures on pharmacology, however, I think it will be most convenient to follow Jussieu's arrangement, and refer the student to Mr. Lindley's work on the Natural System, for further botanical information.

Section 1.—CICHORACEÆ.

This section contains four species which will require a short notice—namely, Leontodon Taraxacum, Lactuca sativa, Lactuca virosa, and Cichorium Intybus.

(*a.*) *Leontodon Taraxacum.*

Dandelion is one of the commonest and best known of our indigenous plants. Its root is fusiform, and abounds in milky juice of a bitter taste. The infusion, decoction, and *extract* (the latter is officinal), are tonic (promoting appetite, and assisting digestion), and in large doses aperient. In some cases the root acts as a diuretic; hence one of its vulgar names. It has long been considered efficacious in hepatic affections and visceral diseases generally. The doses of the extract is from a scruple to one or two drachms.

(*b.*) *Lactuca sativa.*

The well-known lettuce is largely cultivated as a salad. Before the flower stem shoots, the plant abounds with a cooling bland pellucid juice,—afterwards it contains an intensely bitter milky juice. If this juice, obtained by incising the stem, be allowed to dry by exposure to the air, it forms a brown mass, called *Thridace* (from θριδαξ *lettuce*) *Lettuce opium*, or *Lactucarium*. The latter term is objectionable, since some apply it to the spirituous extract of lettuce opium,—others to a watery extract.

Properties. — Thridace, lettuce opium, or lactucarium of commerce, is in roundish hard masses, of a brown colour, with a strong odour like that of opium.

Composition of thridace.—It has been said to contain, as its active principle, morphia, but further proof is required ere we admit the statement.

Physiological effects.—These are very analogous to those of opium. It has been said to procure calm and sleep without some of the ill effects of opium.

Uses.—It may be used in any cases in which anodynes are required. It has been recommended in pulmonary consumption, to allay cough,—in chronic rheumatism,—in colic,—and diarrhœa.

(*c.*) *Lactuca virosa.*

This is an indigenous poisonous plant, contained in the Edinburgh Pharma-

copœia. It contains a milky juice, which, when inspissated, has been used as a substitute for opium. It has been said to contain morphia.

(d.) Cichorium Intybus, or Wild Succory.

I notice this plant because of the extensive use now made of it as a substitute for coffee.

History.—The plant was known in the most ancient times. Theophrastus (who lived about 300 years before Christ) and Dioscorides termed it κιχωριον. Pliny tells us the magicians say, those who anoint their bodies with the juice of this plant and oil, become so favoured that they more easily obtain whatever they may desire.

Botanical description. — Respecting the botany of the plant, all I can find time to say is that the root is fleshy and spindle-shaped; the stem from one to three feet

Fig. 123.—*Cichorium Intybus.*

high; the leaves runcinate, and the flowers numerous, large, and of a bright pale blue colour. It is a common indigenous plant, and is cultivated largely in the Netherlands, Germany, and Holland.

Chemical composition of the root. — Juchs has made a superficial examination of the root of wild succory, and gives the following as the constituents:—

Bitter watery extractive	25
Resin	3
Sugar ....}	
Ligneous fibre ....}	72
Sal Ammoniac ....}	
	100

Planche has found other salts—namely, nitrate and sulphate of potash, and chloride of potassium. Waltl mentions inuline. Lacarterie says, that when an infusion of the root is mixed with syrup, the liquid thickens and a new body is formed, which has been termed *Gomme saccho-cichorine.*

Effects and uses: (a.) of the root. — Fresh succory root is considered tonic, and, in large doses, aperient. It has been used in chronic visceral and cutaneous diseases, usually in the form of decoction.

(b.) Of the torrified root, or Succory Coffee.— Succory root, cut, dried, torrified, and ground to powder, is most extensively employed as a substitute for coffee, or rather, I ought to say, to adulterate coffee. A full account of the preparation of it will be found in the *Annales de Chimie*, lix. p. 307. Its consumption is so great, that some fear has been expressed of its seriously injuring the trade in, and cultivation of, coffee; and the Chancellor of the Exchequer has proposed to lay a tax on it. I am told that it is employed very largely by grocers, to adulterate their coffee; by coffee-house keepers, and by economical house-keepers. It yields a perfectly wholesome and agreeable beverage, but wants that fine aromatic flavour peculiar to coffee, and for which the latter is so celebrated.

Section 2.—CYNAROCEPHALÆ.

This section contains no species requiring much notice in these lectures. The *Arctium Lappa*, or Burdock, is the only officinal plant belonging to the section. The root is regarded as tonic, aperient, diuretic, and sudorific; and has been used in the form of decoction in rheumatism, and diseases of the skin.

Section 3.—CORYMBIFERÆ.

This section contains several officinal plants, but none of them of much importance.

(a.) Anthemis nobilis.

Chamomile flowers contain a volatile oil, resin, and bitter extractive; and on these principles their medicinal activity depends. The oil and resin render them stimulant, while the bitter extractive communicates tonic properties. The warm infusion is used externally as a fomentation, internally to promote vomiting. The cold infusion, or the extract, is taken as a tonic in any cases in which tonic substances are indicated, as dyspepsia.

(b.) Anthemis Pyrethrum.

The root of this plant is imported from the Levant, packed in bales, under the name of Pellitory of Spain. It is brownish externally, whitish internally: its taste is hot, acrid, and persistent, depending on a fixed acrid oil deposited in vesicles in the bark; this oil renders the root a powerful acrid rubefacient and stimulant. It is

principally employed as a masticatory in rheumatic affections of the face, or in the form of tincture in toothache. Sometimes gargles are made of it, and used in relaxations of the uvula. Internally it has been taken as a gastric stimulant.

(c.) *Inula Helenium.*

Elecampane root is an officinal substance. It contains a white starchy-like powder, called *Inuline*, a volatile oil, a soft acrid resin, and a bitter extractive. It is regarded as a tonic, diuretic, and diaphoretic, and has been used in dyspepsia, pulmonary affections, and a variety of other diseases.

(d.) *Tussilago Farfara.*

Coltsfoot is another officinal article; it is a very slight tonic, and has been used to allay cough.

(e). *Artemisia Absinthium.*

This indigenous plant is cultivated near Mitcham. It has a strong aromatic smell, and a very bitter taste. It possesses both stimulant and tonic properties, the former depending on the volatile oil and resin it contains, the latter on bitter extractive. In 1828 Leonardi announced the discovery of a very bitter alkali in it, which has been termed *Absinthin*. This plant has been employed with advantage in intermittents, dyspepsia, epilepsy, and in worms. It may be given in powder, in doses of a scruple to a drachm.

CLINICAL LECTURE

ON

DISEASES OF THE SKIN.

By J. P. Litchfield, M.D.

Physician to the Infirmary for Diseases of the Skin, &c. &c.

Porrigo Scutulata—Symptoms—Alteration of Structure—Causes—Prognosis and Treatment.

I am desirous of directing your attention to-day to some of the more frequent forms of porrigo. The patients, Louisa Cross, aged 5 years, and William Cross, aged 3 years, have laboured under porrigo scutulata, or ringworm of the scalp, two months: the disease first made its appearance in the form of circular patches, of pale straw-coloured points, buried beneath the skin, more numerous in the circumference than the centre, and succeeded by scabs which change to incrustations of a breadth corresponding to the extent of the eruption, and also generally of a circular form, the hair in the neighbourhood of the eruption being thin and dry, and partly removable by the application of the comb.

The prevalence of this troublesome form of disease—the offensive nature of its appearance in a part so much exposed to observation—the destruction which it occasions of the chief ornament of the head—the apprehension of contagion felt by those who are exposed to contact with diseased individuals—and their consequent exclusion from places where education and employment may be obtained, have been truly said to render the majority of cases very distressing. When to this also is added the obstinate character of the disease, its occasionally torpid condition, and the anxiety of parents to regain the time which is lost in the education of their children, we cease to be surprised at its propagation in schools, and perceive that no vigilance or care on the part of the superintendants can afford sufficient security against its ravages.

On the other hand, it is satisfactory to know that the improved habits introduced into scholastic establishments in England, and the necessity for observing cleanliness in the management of these diseases, acknowledged by even the less educated classes, have operated to prevent this intractable disease from running into the more disgusting forms which I have seen it assume in the hospitals and poor houses of France and Italy: indeed, the cases in this country afford no parallel to those which occur in places where personal cleanliness is less attended to.

The appearance of this form of porrigo in situations where the hair is originally abundant, and the presence of separate hairs in each favous scab, has led M. Baudelocque to believe that the disease is primarily evolved in the bulbs of the hair. According to this gentleman, the matter is deposited within the cavities of these follicles, and the secretion going on, concretes around the central nucleus, which increases in size, and ultimately fills and distends the cavity of the follicle. The favous deposit next seeks a passage to the exterior, and penetrates the neck of the follicle, and being retained by the cuticle at its orifice, dries around the mouth of the duct, the same process being repeated as each fresh quantity of secretion attempts to escape, so that the solid part, conical at first, becomes broader by degrees, and ends by being changed into a cylindrical body, and then into a slightly convex superficial crust, in proportion as the orifice, by being enlarged, and, as it were, everted, approaches the level of the bottom of the

follicle, the cavity of which is finally transformed into a superficial excavation.

Such are the primary results; but according to M. Baudelocque, the progress of the disease causes all trace of the above conditions to be lost. When the cavity of a follicle, by the dilatation of its neck and orifice, is converted into a slightly concave superficies, if the secretion still goes on, the fluid, by accumulating under the scab, pushes it outwards, and forces back the corion towards the subcutaneous cellular membrane and circumjacent parts. The cuticle then gives way around the whole circumference of the incrustation, which is thrown off, unless it happens to be retained by the hairs which pass through it; the follicle then resumes its original form, the cuticle is renewed, and the cure would be spontaneously accomplished, did no new pustules make their appearance to continue the disease. When the rupture of the cuticle is only partial, the favous incrustation continues adherent to the skin; the secreted fluid oozes out, spreads, and dries in the circumference of the primary scab, the diameter of which it thus increases, but, no longer encountering any cause of limitation, being no longer moulded in any particular manner, it forms prominences and depressions, which contrast strongly with the regularity of the primary scabs; and it is by these irregularities that the point at which the epidermis has ceased to regulate the dessication of the discharge may be ascertained.

M. Rayer truly remarks, that M. Baudelocque, in common with many other pathologists, has here assumed that the epidermis, instead of penetrating into the interior of the bulb, is reflected upon the hair near to the external orifice of the follicle. My late learned friend and colleague, Mr. Chevalier, has, however, proved that the epidermis descends into the cavity of the follicle, as far as the bulb of the hair, before it becomes reflected along it. M. Rayer, therefore, proposes to modify the hypothesis in a manner which appears more in unison with the disposition of the parts. He agrees with M. Baudelocque that the orifice of the follicle is really plugged up with the favous matter, which dries, and adheres strongly to the neck of the hair, and also to the epidermis which is reflected at the entrance of the follicle. The secretion of fluid going on continually from the inner surface of the follicle, gradually extends the latter, until the thin and unyielding epidermis which is reflected into the follicle gives way under the part where it is in contact with the obstruction formed by the concrete pustulous matter; after which it penetrates between the dermis and cuticle, which is detached, and forms, by drying, the circular incrustation, such as we have described, prominent in its circumference, and depressed in the interior near the central nucleus.

The extent to which the structure of the skin is changed in porrigo scutulata varies according to the standing and character of the disease. In very recent cases, the conduits of the follicles are merely dilated by the accumulation of fluid. In other instances we might be tempted, at first sight, to imagine that the entire substance of the skin was destroyed, did we not know, in similar cases, that no loss of substance has been experienced, inasmuch as the integuments are found to return to their natural state, leaving no trace of a cicatrix behind.

It is true that in inveterate cases of ringworm of the scalp, occurring in unhealthy children exposed to much neglect, the skin of the cranium may ulcerate and become changed into reticulated fibre, surrounding perforations of the corion, at the base of which the pericranium is sometimes seen inflamed, and the bones of the skull denuded, and in a state of caries. But this is one of the results to which I have alluded in the earlier part of my lecture; and though I have notes of several cases of the kind which I have seen on the continent, I have had no experience of such results in this country.

I have been somewhat diffuse on the subject of this form of ringworm, because it is one of the most common affections to which the hairy scalp is liable. The disease attacks both sexes indiscriminately, and may make its appearance from infancy to the most advanced period of life: it is most common, however, to children under the age of 12. But I have never seen a case in which the eruption made its appearance on a bald-headed person in whom the piliferous follicles had disappeared, or were in a state of atrophy—a fact which seems to me in some degree to support the theories of Messrs. Baudelocque and Rayer. The soles of the feet and palms of the hands also enjoy an immunity from the disease, but all other parts of the body are liable to its attacks.

Porrigo scutulata occasionally occurs spontaneously in children of weak and flabby habits, who have been ill fed and insufficiently exercised; but it may be more commonly traced to contagion, as in the cases under consideration. Occasionally the disease has been confounded with eczema and pityriasis of the hairy scalp, under the generic name of *tinea:* of all diseases of the skin, however, this form of porrigo is the least equivocal in its external characters, inasmuch as no other af-

fection is characterized by the evolution of minute pustules which do not rise above the level of the skin, and which leave behind them the same circular cup-shaped incrustations.

Nor can the disease be confounded with impetigo, if a proper degree of care is used in the examination, as the secretion from impetigo does not form true crusts until after the lapse of several days, and then the majority of them are rounded, and less adherent to the skin than the crusts of porrigo. The pustules of porrigo are also buried in the skin, and are covered with incrustations almost from the first moment of their formation. Sometimes this disease has been simulated by persons who wished to excite charity, or were desirous of evading military service, and this has been done by the action of nitric acid, producing yellow stains and eschars on the hairy scalp; but these spots want the characteristic ring and cup-shaped depression, and few who are familiar with the disease would be duped by the artifice.

The treatment which I have pursued in the cases under consideration has been to employ frequent and regular ablution with warm water, together with an occasional bread poultice at night, until the irritated and inflamed condition of the parts had subsided; after which, I have employed an ointment formed of the *iodide of carbon*, as described in my last lecture, every night and morning, which has succeeded in all the cases under my care, where due attention has been paid to cleanliness. I should mention that I also directed the parent to shave the hair from the scalp, in the neighbourhood of the eruptions, once a week, with strict injunctions to disturb the pustules as little as possible.

In cases of long standing, which have fallen into a chronic or torpid state, pencilling the parts lightly with chlorine, or sulphuric acid, will be found to succeed. In some of the more rebellious forms of the disease, the only absolute method of cure is the *depilatory mode of treatment*. The old method of effecting this was to prepare a plaster formed by mixing four ounces of rye flour with a pint of cold vinegar; the mixture is then to be placed on the fire and stirred continually, while, at the same time, half an ounce of verdigris, in powder, is added to the composition: it should then be boiled for an hour, and 4 oz. of black pitch, 4 oz. of yellow resin, and 6 oz. of Burgundy pitch, added, to form an adhesive plaster. When all these ingredients are melted and incorporated, six ounces of the ethiops mineral should be thrown into the mixture, which is boiled until it attains a proper consistence, and spread while warm upon a stoutish black cloth. The plaster thus prepared is the well-known *calotte*, employed in the French hospitals to extirpate the hair, and is applied by slitting the cloth in different directions, so as to prevent its creasing, and admit of its being removed in strips.

The *calotte*, after being applied to the scalp in this way for three or four days, is rapidly removed in the contrary direction to the hair, and a second applied, which is afterwards removed in the same violent manner. The plaster is subsequently renewed every second day, and at each removal more or less of the hair is torn away with it, the patient being subjected to the most cruel suffering during each step of the treatment.

I have described the operation of the *calotte* to you, in order that you may be aware of the practice; but this mode of removing the hair is, *malgré* the bad pun, a *barber* ous practice, unworthy of your adoption, and of the advanced condition of our art. It is true that by this treatment a vast number of cures have been accomplished after other remedial measures had failed; but as the action of the plaster cannot be confined to the diseased hairs only, and as the removal of the healthy hair is unnecessary and extremely painful, Mr. Plumbe proposes to extirpate the diseased hairs one by one, with a small pair of forceps contrived for the purpose. This plan, however, lasts longer than the other, is attended with great suffering when the hairs adhere to their bulbs, and can only be employed in cases where the disease is confined to a small portion of the scalp; and in such cases the iodide of carbon, or the mineral acids, will usually be found sufficient, as I have before explained. The plan which I should recommend you to adopt in cases of long standing which require it, is the following:—

The hair should be cut off by the scissars at the distance of an inch and a half, or two inches, from the surface of the scalp. The incrustations may be got rid of by means of linseed-meal poultices and hogslard. The head being carefully washed with soap and water, and the poultices repeated for three or four days until the surface of the scalp appears quite clean, the parts, if not in a state of active inflammation, should then be anointed every night with a depilatory ointment, and the end will be accomplished by the hair being gradually loosened, and coming off without the infliction of pain. Every morning after the application of the ointment a fine-toothed comb should be passed through the hair where the ointment has been applied.

The depilatory ointment which I have found most successful has been formed by adding two drachms of chloride of lime to two ounces of spermaceti ointment, the parts affected with porrigo being rubbed assiduously for ten minutes every night with the preparation. I have likewise used for the same purpose the carbonate of potash, in the proportion of two drachms to an ounce of lard. If the hair is not speedily loosened by these applications, I have also been in the habit of touching the parts once a day with the solution of caustic potash. I have always found that the hair removed by these means has been regularly reproduced on the parts thus rendered artificially bald, if the progress of the disease had not destroyed the piliferous bulbs.

I am also about to dismiss a case of porrigo favosa, and one of porrigo decalvans, upon which I was desirous of making some observations, but must reserve them for another day.

FLUORINE OBTAINED IN A FREE STATE.

By G. J. Knox, Esq. and the Rev. Thomas Knox.

As far as the existence of a substance which has not hitherto been procured in an independent state could be determined, the experiments and reasoning of Davy and Berzelius are sufficiently conclusive. The only desideratum seems to have been the obtaining a vessel upon which this energetic principle would exert no action. Since fluorine shows no affinity for the negative elements, oxygen, chlorine, iodine, and bromine, nor for carbon or nitrogen, it would appear that the vessel to contain it should consist of some solid compound of those substances; but as such vessels would be unable to bear exposure to a high temperature, we considered that though they might be convenient for retaining the gas when once obtained, they would not answer for its production. It was therefore necessary to employ some substance already saturated with the element; and for this purpose fluor spar, from bearing exposure to a high temperature and being easily formed into vessels, appeared best adapted. The most convenient method of obtaining the gas seemed to be by acting upon fluoride of mercury with dry chlorine, by which means, if the absence of moisture could be insured and the formation of a chloride of mercury obtained, fluorine must have been disengaged, and, if present, would be recognized by appropriate tests.

Placing dry fluoride of mercury in the fluor-spar vessel, we heated it till a glass plate cooled by the evaporation of sulphuret of carbon showed no trace of moisture in the vessel; the chlorine was then passed through a desiccating tube filled with fused chloride of calcium, the tube being bent at an angle, and its extremity drawn capillary, so as to enter the vessel, which, when filled with the gas, had its orifice closed with a plate of fluor spar which was fastened firmly down.

After exposing it to the heat of a spirit-lamp for some time, on removing the fluor-spar cover, and replacing it rapidly with one of silica, it showed immediate and powerful action. The inside of the vessel was found on examination to be covered with crystals of bichloride of mercury; both of which results prove the presence of either fluorine or hydrofluoric acid; to determine which, we repeated the experiment, cooling the cover of the vessel so as to condense any hydrofluoric acid which might be present, but none appeared, from which we inferred that fluorine and not hydrofluoric acid had been present in the vessel, which was also further confirmed by the absence of fumes when the vessel and its contents had been previously dried.

Placing inverted over the orifice of the vessel a clear crystal of fluor spar, with a small perforation in the centre into which a stopper of fluor spar fitted accurately, on the stopper falling into the vessel the tube was filled with a yellowish green gas, the colour of which deepened with heat, and disappeared when cold. On reheating the vessel below, the gas rose again in the crystal above. On removing the crystal while hot to a wet glass plate, it flew to pieces, which prevented us from determining whether the coloured gas was bichloride of mercury under heat and pressure, hydrofluoric acid, or fluorine.

Having procured larger vessels with receivers into which ground stoppers were made to fit accurately, we resumed in the present month the experiments we had tried in the beginning of April.

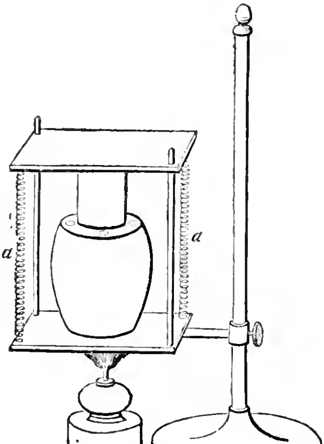
1st Exp.—We heated fluoride of lead with oxygen, and afterwards with dry chlorine, without action upon the fluo-

ride. When the receiver (its stopper having fallen into the vessel below) was placed over gold-leaf, a *chloride* of gold was formed.

2d Exp. — Treating hydrofluate of ammonia similarly with chlorine, there was strong action on glass, and formation of *chloride* of gold as before.

3d Exp.—Treating fluoride of mercury with chlorine (as we had done in our former experiments), we obtained crystals of bichloride of mercury in the vessel. Leaving the receiver over gold-leaf, there was after a considerable time action on it, producing a yellowish brown appearance. This we placed on a slip of glass, and on adding a few drops of sulphuric acid and evaporating to dryness, there was very strong action on the glass where the gold had been, proving that it was a fluoride of gold,

Fig. 1.



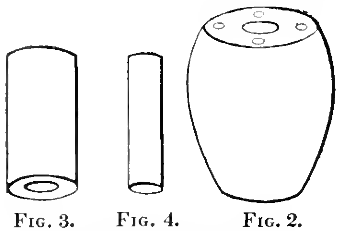


Fig. 3. Fig. 4. Fig. 2.

Explanation of Figures.

Fig. 1. The vessel with the receiver in the stand, which holds down the receiver by means of spiral springs, *a*.

Fig. 2. Vessel with cover off, showing the orifice and the small depressions in which the gold-leaf, &c. were placed.

Fig. 3. Receiver without stopper.

Fig. 4. The stopper.

and that since gold is not acted on by hydrofluoric acid, there must have been fluorine in the receiver. As an additional corroboration there was no hydrogen in the tube, which there would have been had hydrofluoric acid been decomposed by the gold. From these experiments we conclude that fluorine was present in the receiver, but whether a slight trace of hydrofluoric acid (to which the action on glass was due) may not have been present with it, we have not yet determined. We hope on a future occasion to be able to give particulars with regard to the properties of the gas; but we consider that the present results are sufficiently important to justify us in submitting them to the public through the medium of your magazine*.

We remain, gentlemen,

Yours, &c.

T. Knox,

Geo. J. Knox.

Toomavara, Tipperary,
July 1836.

SKETCH OF THE MEDICAL INSTITUTIONS OF VIENNA.

(For the Medical Gazette.)

By Edwin Lee, Esq.

[Continued from p. 701.]

Close to the general hospital is a circular building, five stories high, destined for the treatment, or rather detention, of insane patients. On each floor are twenty-eight white-washed cells, most of which contain no other furniture than two beds, without any other covering than a blanket. At the time of my visit there were upwards of three hundred patients in the tower; whence they do not go out until dead or dismissed, as there is no place for exercise except the corridors, where the more tranquil patients are allowed to walk about. One female monomaniac had been thirty-six years an inmate of her cell. There is no division of the patients according to the varieties of the disease, nor does any plan of treatment seem to be adopted beyond that of remedying urgent symptoms. Moral measures are, of course, out of the question. The usual means for repression of the furious, consists in a garment of sackcloth to cover the upper part of the trunk, the arms being tied across the

* London and Edinburgh Philosophical Magazine, for Aug. 1836.

stomach. Some of the beds are furnished with straps for the wrists and ancles. The physician, or his assistant, visits daily. The patients are superintended by male keepers. Those who pay forty florins per month are allowed rooms, tolerably furnished, and food of a superior quality. Very few are cured, but many, when quiet, are suffered to leave, or are removed by their friends.

The Medico-Chirurgical Academy was also instituted by Joseph the Second, and was newly organized in 1802. Its object is to form skilful medical men for the army. The number of pupils is two hundred, and the course of instruction lasts two years. The building is one of the handsomest in Vienna: it contains an anatomical theatre, library, a museum of natural history, and the magnificent collection of anatomical wax models, occupying several apartments, and arranged with the greatest care, according to the divisions of anatomical science — as osteology, myology, &c. The models are made by Fontana, who also made those in Florence: the latter, however, appear to me to be neither so correct nor so well executed as those in the Vienna collection. A large military hospital joins the Academy, and contains the ophthalmic clinical wards of Professor Jæger, who delivers a lecture and holds clinical examinations daily. These wards are darkened by green window-curtains, and skreens are placed before the beds, by which the admission of light can be regulated. The number of beds does not exceed five-and-twenty. The Professor has, however, also an ambulatory clinique at his own house, which is numerously attended both by patients and pupils. He combines general with local treatment, in the majority of cases: the basis of treatment is mostly antiphlogistic and revulsive; stimulating applications being less frequently used than by most English practitioners. The Professor operates for cataract exclusively by extraction.

The hospital of the Barmherzige Brüder, in the Leopoldstadt, contains about one hundred and twenty beds, principally in one long ward on the ground-floor, for mechanics and others of the sick poor of any country or religion: the upper part of the building is occupied by the members of the brotherhood. This hospital is supported by the funds of the society, and by contributions, for which a brother calls upon strangers at their hotel. All patients of the male sex are received on application: the cases are consequently for the most part of acute and chronic internal disease; there are also some surgical cases, principally syphilitic. A physician, resident in the town, makes daily visits in the morning; one of the brotherhood, however, acts as superior physician, and the patients are exclusively attended by the brethren. The practice is expectant in most cases; decoction of althea, a mistura oleosa nitrosa, and other mucilaginous drinks, being the most usual remedies employed in febrile or inflammatory cases: in two strong men, however, who were attacked by pneumonia, bleeding had been prescribed. Sixteen ounces of blood were abstracted at once from one patient; the other had been bled four times, from eight to ten ounces being taken each time. Mercury, antimony, purgatives, tonics, and counter-irritants, are not frequently ordered. In low nervous fever, which is not infrequent, valerian and camphor are often exhibited. Intermittents are usually treated by a solution of sulphate of soda in decoct. graminis.; if this fail, bark is resorted to. Colchicum is not given in rheumatism, which is generally combated by the lighter diaphoretics, as the liq. ammon. acet., and by stimulating embrocations. At the time of my visit, there was a patient recovering from an attack of cholera, which had been treated by mucilaginous drinks, small doses of Dover's powder, and subsequently by infusion of chamomile. In these cases the patients are allowed to have hot or cold drinks, according to their inclination. There was also an old man with fracture of the femur at its centre: the whole limb had been placed in a sort of junk, which was loosely bound together, with two splints on the anterior part of the thigh: no means were adopted for keeping up extension, and the shortening of the limb was considerable three weeks after the accident. Syphilitic cases are generally treated by a mild mercurial course, calomel or the mercurial ointment being the preparations preferred.

Convalescents are transferred to a house in an open quarter of the suburb, until their complete recovery.

The hospital of the Elizabethan nuns is destined to receive fifty sick females, who are attended by the nuns. The medical duties are performed by a phy-

sician and a surgeon, who visit daily. The annual number of patients admitted average about five hundred.

The University was founded by the Emperor Rudolph, in 1365, and was at one time one of the best in Europe; it subsequently fell into disrepute from the indifferent character of the professors, but was restored and newly organised by Maria Theresa, assisted by the celebrated Van Sweiten, who richly endowed it with money, and gave it his valuable collections. The faculty of medicine thus enriched soon counted among its professors men of the highest reputation, as Stoll, Frank, Hildenbrand, Prochaska, Beer, &c., and the number of students was proportionably large. More recently, however, it has again declined, the progress of science not keeping pace with the advanced state of other Universities.

The present professors are—for anatomy, Berres; physiology, Czermak; natural history, Fischer; botany, Jaguin; chemistry, Jaguin; general pathology, Hermann; special pathology and clinical medicine, Hildenbrand; clinical surgery, Wattmann; obstetricy, Horn and Klein; pathological anatomy, Rokitausky; ophthalmological clinique, Rosas; medical jurisprudence, Bernt.

The building is handsome, of a quadrangular form, and two stories high: on the ground floor are the anatomical theatre and chemical laboratory, the saloon for scientific meetings and examinations, and cabinets of various machines and instruments occupy the first floor. On the second floor is the anatomical collection, rich in injected preparations of Ruysch and Prochaska. The University also contains a museum of natural history, and an extensive library.

The number of students amounts to about 1,500, of which 800 attend the medical courses, which are public and gratuitous, in the following order. First year, mineralogy, zoology, botany, anatomy and dissections; second year, physiology, chemistry; third year, medical pathology, general therapeutics, pharmacology, theoretical midwifery, and veterinary surgery; fourth year, special pathology and therapeutics, medical and surgical cliniques; fifth year, special pathology, clinical medicine, forensic medicine, medical police, ophthalmological lectures, and clinique.

Surgeons are divided into three classes: the lowest class, or minor surgeons, attend lectures for one year, undergo an examination, and also officiate as barbers; those of the second class require a three years' course of study, and are termed magistri; the highest class are required to take a degree of doctor of medicine and surgery.

Students are examined each year during their studies. At the termination of the fifth year, they have to undergo two examinations (rigorosa); in the first they are examined on anatomy, physiology, pathology, zoology, and botany; in the second, on pharmacology, forensic medicine, medical police, chemistry, and the medical, surgical, ophthalmological, and obstetric cliniques, which take place in the wards. Surgical candidates are required to make a demonstration, to perform an operation on the dead body, describing its various steps, and subsequently to operate on the living subject.

As the courses are gratuitous, medical education costs little in Austria. The examination fees are, for the medical diploma, 200 florins; for surgical diploma, 140; for the degree of magister in midwifery, or learning to practice as an oculist, 48 florins.

London, August 8, 1836.

CASE OF RECTO-VAGINAL FISTULA.

To the Editor of the Medical Gazette.

Sir,

Thinking that the inclosed case may be both interesting and instructive, I take the liberty of sending it to you for insertion in your earliest number.

I am, sir,
Your most obedient servant,
George Glen.

18, Brompton Row,
Aug. 9, 1836.

Mrs. D., æt. 27, the subject of the following memoir, whose first and only parturition took place on the 29th April, 1834, was shortly after it seized with irritation of the bladder, pain and tenderness over the hypogastrium, with considerable fever and procidentia: the discomfort was so great as to induce Mr. White, of

Parliament-street, who then attended her, conjointly with Mr. Anderson, sen., of Brompton, to sound her bladder, thinking it might contain a stone; none, however, was found. The disturbance of her whole system, always too easily excited, was at one time so great as to produce nervous fever and delirium. She came under my care about this period with nearly the same symptoms, with the exception of delirium, which had already subsided.

The micturition, which was most painfully frequent, led me to suppose that it might arise from diseased kidney, more especially as, having had several apparent attacks of inflammation in that organ, they had always subsided under the ordinary means. The procidentia was likewise a painful part of her disease, but by an examination per vaginam I could not attribute it to any particular organ with certainty; from her symptoms, however, it appeared to me to originate in the bladder. She continued under various alternations of suffering and improvement to the Christmas of 1834, when she seemed to have nearly recovered, being able to resume her usual habits. This state was, however, only illusory, for her former symptoms gradually returned about Midsummer, 1835. She consulted many of the most eminent practitioners of the metropolis, among whom were Sir B. Brodie, Sir C. M. Clarke, Drs. Merriman, Blundell, and Roe, all of whom, I believe, thought her disease to exist in the kidneys or bladder. She several times, both before and subsequent to that time, complained of the painful passage of flatus through the urethra, which I did not myself believe, rather conceiving that it might have passed through some laceration of the vagina into the rectum, from the circumstance of her labour having been one of impaction during many hours. However, there shortly appeared decisive symptoms of the true nature of her painful malady; some fæces having passed with her urine, immediately disclosed the existence of a communication between the bladder and bowels. The case was now justly considered hopeless by her medical attendants; and after living many weeks in this miserable state, she died the 20th July last.

I requested a post-mortem examination, which was readily granted, and was ably assisted by Dr. Roe and Messrs. Wm. Anderson and Mr. R. Gray. On laying open the parietes of the abdomen, we found them adherent to the bowels nearly over its whole extent, but more especially towards and over the hypogastric region, involving the omentum, in a state of ulceration; a large effusion of serum, mixed with flakes of lymph and pus, escaped. Much chronic inflammation of the bowels had been evidently going on for a considerable time past. The uterus itself was quite healthy, but its right ovarium was increased five or six times beyond its usual size. All these parts so strongly adhered, from the effects of inflammation and suppuration, that it required much force to separate them. I carefully removed, for examination, the bladder, uterus, and a portion of the rectum. The walls of the bladder were much attenuated, and its mucous surface covered (especially towards its fundus, the situation of the aperture) with small dark spots. The body of the uterus appeared to be quite healthy, but having its right ovarium, as already observed, much enlarged, and likewise in a state of ulceration. The rectum exhibited no particular marks of disease, except where the communication existed. It appears to me very probable, that, from her very protracted labour, the efforts of the uterus may have occasioned inflammation of that organ; and its extension to the ovarium, and the lymph thrown out from the inflamed surfaces, had gradually produced adhesive inflammation of the contiguous parts, forming various abscesses, which, in dissecting, I was obliged to rupture. I can in no other manner account for the course of the sinus, which passed from within the left side of the rectum over the fundus uteri, by the side of the diseased ovarium, into that of its opening into the bladder.

In closing this brief but faithful outline of my deceased friend's case, which I feel to be both interesting and instructive to medical science generally, more especially in its department of morbid anatomy, I shall not attempt, by any speculative opinion of mine upon its result, to lessen or misdirect the effect of its simple relation upon the minds of its readers.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

Opération de la Pierre, d'après une Méthode nouvelle; par le BARON DUPUYTREN. *Ouvrage terminé et publié*, par L. J. SANSON et L. G. BEGIN. *Avec dix belles Planches lithographiées par Jacob.* Bruxelles, et Londres; Dulau.

WE have here the celebrated work, long promised, long expected, from the hands of Dupuytren; it comes out at length posthumously, edited by the able surgeons whose names are given in the title, and to whose care it was bequeathed by the illustrious author.

The perfection of lithotomy was for many years an object of M. Dupuytren's best attention. In 1812, when he gained his eminent post in the Hôtel Dieu by *concours*, his thesis was on that subject, and he then pronounced the opinion, "that the methods and processes for extracting the stone from the bladder were already brought to all the perfection of which they were capable; that new methods and processes could only load surgery with superfluous riches; that reason dictated that the great object thenceforth should be to choose among those methods which ought to have the best title to preference, to shew how the inconveniences belonging to the best might be prevented, or remedied if prevention could not be attained." Further consideration, however, induced him to believe that there was still room for another method, one that would prove less destructive than any previously in use.

In his first section, M. Dupuytren notices the extraordinary discrepancies in the results reported by divers authors, respecting the mortality of operations for the stone. Raw's audacious and absurd statement, that he had operated on 1647 patients without losing a single one, is properly exposed, as contrary even to the natural order of events, unless the mere operation were attended to, and no account made of the after treatment. The returns of Lecat, Cheselden, Frère Côme, and others, are next contrasted: the result of the author's own experience, together with the exact returns of some of his contemporaries, is then stated; from all of which he draws the conclusion, that one in five, or one in six, must be considered as the real mortality attaching to the operation.

The possible causes of this mortality—the dangers of the operation—are then reviewed; and the author relates the series of trials which he made for the purpose of obviating these dangers. His remarks on the several methods of operating commonly practised are ingenious and interesting: but we must be contented with directing the reader's attention to them in the work itself: let it suffice for us to state generally here, that the method to which his profound anatomical skill and surgical sagacity led him to give precedence, has been the bilateral or lunated one, practised across the median line of the peritoneum about an inch above the anus, and with the horns of the crescent directed downwards towards the tuberosities of the ischia. All this is beautifully and clearly described by the author, and every requisite detail is given in the way of illustration.

It deserves to be noticed that the plan of operation proposed by M. Dupuytren is not exactly new, though it is so stated in the announcement. The author candidly mentions the fact: he proves that the method he hit upon, and deemed proper to recommend as the best, is really the *Celsian* method, though the passage in the Latin original has hitherto been scarcely understood. What Celsus says is this: *Cum jam eo venit* (calculus), *ut super vesicæ cervicem sit, juxta anum incidi cutis plaga lunata usque ad cervicem vesicæ debet, cornibus ad coxas spectantibus paullulum*: where, it must be confessed, the expressions *juxta anum*, and *ad coxas spectantibus*, are sufficiently vague to excuse the misconstruction which has usually been put upon them. M. Dupuytren, however, will have it, that the words of the text describe beyond a question the peculiarities of the method which he proposes.

In the concluding section we find a statistical table setting forth the results of the transverse method. M. Dupuytren is by no means satisfied with it, as it may lead to injurious remark on the part of the prejudiced, yet he has very properly given it at all hazards. It appears that of 89 operated on, 19 died—giving a mortality of 1 in $4\frac{2}{3}$;

but it is satisfactorily shown that in 12, death occurred from accidents not necessarily connected with the operation. Of the other 7, which must be considered as the actual number lost by the operation, the deaths were caused by inflammation of the bladder or the cellular tissue. Nine or ten excellent cases are added, as illustrative of the practice and after-treatment.

But the striking beauty of the work is in the admirable plates with which it is accompanied. These are executed in the highest style of the lithographic art: the figures the size of life; and every part of the surgical anatomy of the perinæum vividly delineated. The demonstration requisite for the operator is complete: it speaks even to the unpractised in a manner the most convincing.

The Brussels publishers have done much for the profession by their economical reprints of French works; but their present performance is a *chef d'œuvre*, which we hope will be duly appreciated. No surgeon can pretend to have a library without a copy, especially as the price, we understand, is so amazingly moderate.

The Speculum applied to the Diagnostic and Treatment of the Organic Diseases of the Womb: an Inaugural Dissertation, presented to the University of Glasgow, for the Degree of Doctor in Medicine. By John Balbirnie, A.M.

The author of this work has exercised a very laudable industry in his researches on a subject hitherto little attended to in this country. He appears to have devoted much study to the diseases of the uterus, profiting by the instructions of MM. Ricord, Lisfranc, and other eminent French authorities, whose practice he quotes freely throughout the volume. But we confess we wish he had not rushed into print so hastily: there are but too many marks of want of finish throughout: the strong traces of total inexpertness in authorship are everywhere to be met with; and the reader of taste will frequently find himself offended by a sort of ambitious pedantry, which almost borders on the ridiculous. For the pedantry, however, the long Greek quotation in the title-page somewhat prepared us: though it did not altogether prevent us from being startled at finding Hippocrates speaking Latin in the body of the work; nor reconcile us to the bad grammar and false quantity with which Ovid is made to express himself at page 21. These are faults which a little patient forbearance, and more caution in meddling with the press in future, may reform. We hope, too, that discretion will prevent the recurrence of any such absurd effusions as the following:—

"We know well the tenacity in the minds of men of long-cherished prejudices, and old-received opinions. We shall be called by many, doubtless, an *innovator*. But we have the consolation to think, that all the best contributions presented by science to modern medicine, have met with opposition; ay, and virulent opposition sometimes; and their advocates have been styled *innovators*. What opposition did not Harvey's discovery of the circulation of the blood create! He, also, was an *innovator*. How was the introduction of the vaccine inoculation first received? Jenner, also, was an *innovator*. The science of auscultation, also, was once opposed in Great Britain; and is, perhaps, still opposed by the physicians of the "ancien régime." But all these have long achieved their triumph, and each created a new era in the history of medicine. Doubtless, a similar opposition awaits THE SPECULUM; but we hope for it ultimately a similar triumph, and that it will create for itself a similar era. *We go forth its advocate. We proclaim ourselves 'the apostle of the speculum!' With that instrument we link our fate; and by that we will stand or fall!*"

The speculum, no doubt, is a very useful instrument in its way, but, when preached up after this fashion, we have our misgivings if sober people will not soon become very shy of its use.

There is a good deal of useful matter in the volume notwithstanding; and we have no hesitation to recommend it to all who make the diseases of females their study.

Atlas d'Anatomie Comparée; par C. G. Carus: *pour servir à l'étude de l'Anatomie comparée.* Brussels; Dulau.

The merits of the work of M. Carus on Comparative Anatomy are well known;

they have been appreciated all over Europe, and have done good service in giving a general impulse to the study. But the Atlas is probably as familiar to the medical world as any other collection of figures, from the fact of its having been laid under contribution by so many subsequent writers. This graphic portion of the work, we are glad to perceive, is now in course of publication at Brussels, separately, and at so very moderate a charge as to put it within the reach of even the most economical. Judging from the part before us—the first eight plates, with the appropriate letter-press—we should say that it is likely to constitute a valuable accession to the student's library. The figures, as given in the Paris edition, are very faithfully copied.

MEDICAL GAZETTE.

Saturday, August 20, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

MEDICAL EVIDENCE RESPECTING TUNNELS.

CELSUS has said of medicine—*nusquam non est*—that it is to be found every where. We were amused a few days ago to find that it has got among the tunnels and railways: in the shape of consultation practice too!

As this may be news for some of our readers, we shall enter a little into particulars. Be it known, then, that among the numerous schemes and jobs of the day the railway speculation is far from being the least active, and that rival companies found their claims to public favour on various supposed advantages belonging to each. Some profess to be the most expeditious—some the most safe—and all promise to be more or less pleasant, for those who intend to use them. All, however, cannot be allowed to lay down their respective "lines" between two given places: some particular set of projectors must get the preference; and parliament has the right of choice. In a late instance, where three projects for a railroad to Brighton were submitted to a parliamentary committee, the decision seemed chiefly to turn on the medical evidence: some practitioners were consulted, and the *tuto cito et jucundé* of the matter was left to them.

But we confess we cannot compliment the medical gentlemen referred to, on the industry or the ability which they displayed upon the occasion. Their testimony was wholly one-sided: they were called upon to give evidence *against* tunnels—and tunnels accordingly were the *alpha* and *omega* of their denunciation. The question was one on which none of them had any experience—at least such experience as would have warranted a sound opinion—and their theoretical reasoning, we must say, was far from being consistent; yet some of them spoke dogmatically enough, so that the purpose in view was carried.

First comes the renowned Sir Anthony Carlisle, who, by some strange mischance, so often volunteers his opinions before the public. Of railroads and tunnels, by his own showing, he knows nothing whatever; yet, with a most ludicrous degree of confidence, he proceeds to state his odd notions on the subject. He thinks tunnels should be discountenanced, because people "cannot always be assured" of passing through them without "catching cold." Hence they are "perilous." They cannot be ventilated: the air within the tunnel is "stationary air;" the temperature also is stationary; yet both the quality of the air and the temperature undergo changes by the addition of "gases" from the engines, and "the effluvia and *respirating products* of the passengers going through;" and these stagnant gases might be impregnated with

"scarlet fever or small pox!" Pandora's box, in short, was harmless compared with the mischiefs pent up in tunnels, according to Sir Anthony.

When we come, however, to inquire into the *reasons* of these opinions, their "rationale," to use the knight's own term, we find that tunnels *cannot* possibly be ventilated, *because wells and borings of other kinds* are very impracticable in Sir Anthony's experience, and because "it is difficult to discharge a *large room* of any stagnant or quiescent mass of air." People also will catch cold because "there will be an extraordinary change in *the blanket of air* (!) belonging to the person in going along;" and as a case in point, what happened lately to Mr. Barry O'Meara was adduced: "he was sitting *near a window;* he felt himself cold from the air of the window, and he changed his place, and from *that exposure* he went home and took to his bed and died!"

He denied that, even by means of shafts, ventilation is practicable to more than a limited extent: "*for*," says the witness, "in the attempts to ventilate, with submission, the late House of Peers and the House of Commons, the most scientific persons were consulted, and every means were devised, but I believe the means were not effectual to discharge the air confined in those rooms, although not very large, and to have pure and refreshing air introduced instead." A more stupid *non sequitur* can scarcely be imagined: though it is of a piece, no doubt, with the *wells* and *borings* already noticed. In point of fact, too, it is egregiously erroneous to state that there was any difficulty in ventilating the Houses of Parliament: there was none whatever in changing the body of air, though there might have been some little trouble in doing it effectually without introducing some kind of draught inconvenient to the members.

Being asked how it happens that miners can preserve their health, though so much exposed to the variations of temperature, Sir Anthony returns this notable answer: "They are all tolerably well clothed, and *they all take care of the inward man: they are all drinkers;* but whether that does good or harm, I will not say!"

And this is the sort of trash given at length by the principal medical witness — gravely listened to by the "learned" counsel—reported verbatim by Gurney—and now published in a popular form for the edification of the community. The profession has need to be proud of so very pre-eminent a display.

Next turn we to the evidence of another witness—Dr. James Johnson—who has at least had the advantage of having actually passed through a tunnel, and is thus enabled to give some account of his opinions, founded on a certain degree of limited experience. Dr. Johnson disapproves of railroad travelling for invalids when they have to pass through tunnels; but, unlike Sir Anthony, he lays little or no stress on the supposed want of *ventilation* in those passages, or on the *gases* fancied by the Knight to be collected there; his chief objection is to the *noise* occasioned by the engines. "The reverberation of sound," he says, "is of more consequence than the vicissitude of the temperature." But we may quote a few questions and answers.

That you speak to from your own experience? — Yes; because in going even under the arches on the Liverpool and Manchester railroad, it is like *a peal of thunder*, and, consequently, in a long and confined space, I conceive that the reverberation would be tremendous with a locomotive engine: if it was drawn slowly it would not have that effect. I think that the noise in going thirty miles an hour would give a very great shock to *delicate* people.

To persons liable to affections of the

heart or head, would it be dangerous?—Yes.

Would you send such persons through those tunnels?—No, I would not. If you will give me leave, I will read a few lines, which were printed two years ago, upon this subject; and, consequently, they could not be directed to this inquiry.

Had you turned your attention to this subject two years ago?—I wrote a Tour, and included the railroad in that tour; and this was the expression that I made use of:—"*The deafening peal of thunder, the sudden immersion in gloom, and the clash of reverberating sounds in a confined space, combined to produce a momentary shudder, or idea of destruction—a thrill of annihilation,*" &c.

Those were your sensations, were they?—Yes.

Further inquiry, however, into those extraordinary sensations was not omitted by the cross-examining counsel,—when they turned out to be mere hyperbole—the "rhetorical artifice" of the tourist.

Will you be kind enough to tell me where it was you *anticipated annihilation?*—I did not anticipate annihilation,—it was a figurative expression, of course; in passing under the arches on the different parts of the line.

Dr. Johnson further qualifies his sensation as to the sound, in another part of his evidence, by saying that it would be *very disagreeable*, to say the least of it, to *sensitive* people. Yet this, after all, is nearly the whole amount of his objection to tunnel travelling. The speed he considers rather "pleasant;" having travelled upon the Liverpool and Manchester railway, and "liked that mode of travelling better, both inside and out, than by the common carriage." Ventilation, he thinks, is in some measure effected "by the rapid movement of the carriages, because the train must dislodge, from one end or other, a volume of air equal to the train itself; and, therefore, when the train went on there would be that volume dislodged. There would also be a slight current produced by the rapid transit of the train."

Sir Anthony Carlisle's "noxious," "poisonous," and "deleterious gases," dwindled down, it seems, in Dr. Johnson's estimation, to the mere "heat of the engine rolled rapidly over the heads of those in the open carriages," and the production of "carbonic acid gas" from the coke consumed. Any gaseous accidental product the Doctor conceives to be of less consequence than the change of temperature. And ultimately, when asked whether the change of temperature is not his *principal* objection, he says, "Yes; that, and the reverberation of sound, I consider almost the *only* objection."

The third witness produced by the anti-tunnelists, is Dr. A. T. Thomson, whose evidence being purely "theoretical," contains, of course, no *fact* whatever. The only passage in any way worth notice, in Dr. Thomson's examination, is the following:—

Have you ever been consulted by your patients as to whether they should travel between Liverpool and Manchester by the tunnel?—No.

Or upon the Leicester and Swannington Railway?—No.

You probably think that it will materially affect the London and Birmingham Railway if there are tunnels upon it?—If *invalids* were intending to travel upon it, it would; but not as that railway is chiefly intended for mercantile people and goods.

Do I understand you, that you look to goods being carried upon that chiefly, to the exclusion of passengers?—No.

But they would be healthy passengers?—Yes.

And they may go without prejudice?—I think the prejudice is much smaller on account of the tunnel in their case.

Do you mean to say, that, taking the average of human kind, they will sustain any injury from passing through a tunnel of 600 yards?—If a man is in very good health, I do not think there is much risk; but, taking the average of human health, I think that there is *some risk.*

The evidence of Dr. Sayer is in the

same predicament. The Doctor thinks tunnel travelling would be "decidedly prejudicial" for invalids: yet his experience may be gathered from the following:—

I have never had an opportunity of travelling through a tunnel myself.

Have you seen any of those tunnels that are at present existing or in use?—No; the only tunnel which I have visited is the one at Kensal Green.

That is not in use?—No.

But those which are in existence upon the Liverpool and Manchester you have not seen?—No; nor upon the Leicester and Swannington. Being tied to London, I have had no opportunity of witnessing them.

We are then presented with the evidence of Mr. Propert, whose experience of the matter amounts to this:—

My attention has been directed to the passage of the steam engine from Paddington to the city. From living in that part of the town I have frequently come into contact with it, and *had to follow it;* the burning of coke or coal, whichever they have, was, I should say, very prejudicial to health generally; but more so when it is confined within the walls of a tunnel of a certain length.

And again:—

Do you apprehend that it would be very difficult, or impossible, to ventilate tunnels properly?—I can only speak theoretically: it has been found extremely difficult to ventilate *things of that kind.*

And almost all experiments of the kind have failed?—To a certain extent they have failed; a tunnel never could be made perfectly clear of *noxious air*, arising from the passage of the steam carriage.

The last witness brought before the Committee is Mr. R. C. Griffiths, whose whole experience is derived from a trip through the tunnel between Whitstable and Canterbury. Upon being asked how he found himself upon the occasion, he answers:—

I put on my great coat, but did not button it; and we did not pull up all the blinds, and we entered the tunnel not feeling it, so that there was apparently no current of air of any consequence by which we could form a judgment that we should be inconvenienced; but when we entered the tunnel, *I was obliged to button my coat, and put my handkerchief round my neck*, and we put up all the blinds but one; there was a tremendous current of air.

The moment you got into the tunnel, did you feel this current of air?

The strongest wind that I witnessed in my life; it produced a catarrh, and the glands in the neck swelled; this inconvenience lasted about two hours.

It does not, however, appear that any one else in Mr. Griffiths' company suffered any thing of a like kind. We should say, too, from our own experience, that Mr. G. must be a very *sensitive* gentleman; for we happen to have passed through the very tunnel he speaks of, and though there was a mixed assemblage in the vehicle, some ladies also among the number, not a soul complained either of cold, or any thing unpleasant: all seemed to feel it as a new sensation, and to enjoy it accordingly. The darkness, the rumbling noise, and the feeling of rapid motion for a minute or two, made up the whole of what was experienced by any of the travellers.

Thus have we gone through the evidence relating to tunnels: the first of the kind, we believe, that has been published. We were anxious to come at facts, but facts we have found none. Not an experiment, not an observation, was made by any of the witnesses, expressly with a view of giving evidence on the subject: and we can only announce our surprise that the conducting counsel of the tunnel party did not avail themselves of the ample opportunity they had of exposing the shallowness, the utter worthlessness, of all that was adduced by their opponents. Should the same points come again to be mooted—for surely what has occurred cannot be made a precedent—we hope that medical witnesses from Liverpool

or Manchester, who know something about railway travelling, will be summoned: they will be able to tell us whether they have had any tunnel cases, and whether, in fact, there is more to be apprehended from passing through such a locality than from going out of one room into another, when there may be a different temperature out of doors. We hope, at all events, to hear no more vague talk about noxious gases, the existence of which is not proved; nor of cold, the degree of which is not ascertained by the thermometer. A repetition of such evidence as that we have noticed, however it may answer the purposes of a party of speculators, and even prove profitable, in a pecuniary sense, to the witnesses themselves, we trust will not again take place. It can reflect neither credit on the profession, nor satisfy the ordinary appetite for scientific information which marks the intellectual character of the day.

THE NEW UNIVERSITY.

We understand that Messrs. Ridout and Bacot, two members of the Court of Examiners at Apothecaries' Hall, have been added to the medical staff of the new University. It would appear that the intention is to have distinct examiners, in each of the three branches of medical science, for the candidates for degrees in medicine. The gentlemen just named, it is to be presumed, will examine in pharmacy. Who are to be the surgical examiners, we have not heard. The College of Surgeons has declined having any connexion with the new establishment; and the College of Physicians has long since refused to have any thing to do with it.

THE MEDICAL WITNESSES' BILL.

This bill, which has just passed into a law, is brief, but most important in regard to the medical profession. All legally authorized practitioners must now hold themselves in readiness, on being summoned by the coroner, to give evidence at inquests, under a penalty of *5l.* should they fail to appear. The fee for mere attendance is one guinea; when a *post-mortem* examination, with or without an analysis of the contents of the stomach, is required, two guineas; and the coroner is to summon such evidence, at the request of the majority of the jury, or otherwise be liable to the consequences of a misdemeanor.

We certainly think the profession is under obligation to Mr. Wakley for this Bill; and no degree of rivalship shall ever, we trust, prevent us from rendering credit even to our bitterest political opponent, when we think he has deserved it.

LECTURES

ON THE

DISEASES OF THE NERVOUS SYSTEM.

By M. Andral.

As published in the *Gazette des Hôpitaux*, with the approval of the learned Professor.

Homicidal Monomania.

The sentiment of benevolence carried to a certain extent gives rise to the greatest displays of the philanthropic virtues; but its diminution or perversion leads to a particular kind of insanity called homicidal monomania.

Homicidal monomania assumes a variety of aspects. Sometimes we see individuals who, without any sufficient reason, entertain a hatred towards some particular person. Such cases are not very rare among women during pregnancy, or at the menstrual period. This kind of antipathy may be only transient, but too frequently it proves permanent. Mothers are even observed to have a dislike to some of their children, and some are aware of the peculiarity of their state, and deeply distressed by it; in others the peculiarity consists in a passion for destruction, amounting to homicidal monomania.

This deplorable affection manifests itself sometimes long before it leads to any positive action. Children will have a pleasure in tormenting and killing animals, and they who do so often prove ruffians in after-life. Homicide committed without motive, interest, or revenge, is usually the result of monomania. In theory this distinction is easy, but it is by no means always so in practice. The following circumstances require to be attended to:—1. The desire to kill, which displays itself in the insane, is not to be imputed to crime, even when followed by some fatal deed. 2. Individuals who during their whole lives have enjoyed their intellectual faculties, and in whom these

have become deranged during a few days, or it may be only a few hours, are still not to be held guilty. It is very necessary, however, to beware lest we take for real what is only put on for the occasion. 3. Homicide may be committed by a person who is not mad except at the moment of the act. Guilt even here ought not to be admitted; but it must be confessed that such cases are very embarrassing. 4. Again: a man may kill another without having been actuated by interest or passion, and without having exhibited any sign of mental alienation before, during, or after the deed. Is he, then, to be held criminal; or is it possible that he may be mad? These are very important questions; nor are they easily answered; but we may say that in these supposed cases the homicide could only have been the result of some hallucination, and not of mere passion. Thus a son kills his mother because an angel appears and promises him an everlasting reward; or a mother massacres her infants lest they should at a future time become thieves!

In fine, we meet with individuals in whom no disturbance of the intellect, no hallucination of any kind, has been manifested, and who are nevertheless irresistibly tempted to plunge their knives into the bosom of persons quite unknown to them. Many instances of this kind are on record. A few years ago, there was a man named Leger, who lived in the woods, because he had become disgusted with mankind. One day he fell in with a young girl, murdered her, and drank the blood. Another, called Papavoine, left his home in a state of melancholy, but without being apparently insane: he went to Vincennes, where he met a young woman with two children, and straightway killed both the latter! Assuredly his intellect was disturbed; and we may fairly doubt whether, if he was now to be tried over again, he would be capitally condemned.

M. Marc has translated numerous analogous instances from the German. A young man was deprived of a situation to which he attached great importance: he was living in the house of a friend, to whose child he was much attached: nevertheless he killed the boy with a hammer, and then forthwith gave himself up to justice. A very honest maid-servant begged of her mistress to be allowed to leave her house, because every time that she dressed an infant who was intrusted to her care she had a desire to destroy it. A woman of simple and gentle disposition was confined, and on seeing her babe, was seized with a longing to immolate it. This feeling struck even herself with horror: she absented herself from the child, then returned, and again the propensity was renewed: she went to church and confessed, but still the desire to destroy her child remained. A physician was now consulted: he had the infant sent away, and at a later period maternal love resumed its empire. The case of a girl named Cornier, which occurred in France, bore some resemblance to this: she, however, did actually kill her child, being, as she said, unable to resist the inclination to do so. It is worth while to remark, in passing, that the publication of this case in the newspapers was productive of very bad consequences—similar crimes being perpetrated in various parts of France.

Before the commission of such an act, most individuals exhibit something remarkable: some have the suicidal monomania; others after the perpetration of the crime fall into a state of the most profound moral depression, as was the case with the young woman named Cornier; yet others recover their reason more completely than before. Some experience remorse for what they have done, and others remain perfectly insensible with regard to it. A considerable proportion of such monomaniacs are quite aware that they do wrong in performing certain actions, and attempt with great skill to conceal them.

The homicidal mania may be instantaneous, and of very short duration: it may, however, return at various periods of life, and in some degree take on a periodical character. We see some men who have never attempted but one murder; others are led on by the first to the commission of a second, and so on. The following is an example of this. About the year 1830, a man named Jean Grenier covered himself with a wolf's skin. He said that he could become a wolf when he pleased; that he then ate dogs and cats, but that children and young girls were his especial delight. He had already taken a child from its cradle, and killed several girls, whom he partly eat. He was taken up, and condemned by the Parliament of Bourdeaux to perpetual confinement.

The disposition to murder exists in both sexes, but age has a decided influence upon it. Of twenty-one celebrated cases, one only occurred in a person not yet 17 years old; and the greatest number were the deeds of persons between 20 and 40.

Some individuals endeavour to resist the fatal propensity; others, on the contrary, give way to it. It is a medico-legal question of great importance, to decide whether an individual who has committed homicide was capable of resisting the propensity or not. It is the duty of the medical man examined on such point to

state the existence of any disturbance of intellect which the accused may labour under. But where this has been the case, namely, that derangement has existed, does it follow from thence that the perpetrator of murder is merely to be placed in confinement? It would be dangerous to take this view of the subject, because society would then have constant cause for apprehension, in consequence of the tendency which exists for such crimes to be committed, as may be understood from what I have already said. It is only where the insanity at the time of committing the crime is quite unequivocal that the individual should be saved from the penalty. The interests of society must be regarded; and we must act upon the minds of men by examples of severity, so as to make an impression, and restrain others by a salutary fear. I have dwelt upon this point the more, because I think that of late medical men have fallen into the error of laying too much to the charge of insanity as regards crime.

Religious Monomania.

To complete the history of monomania it remains to speak of that arising from the exaggeration, diminution, or perversion, of religious sentiments. Religious monomania presents various forms. In one the individual thinks of nothing but the Deity; he can occupy himself with no other thought, and is thus in a continual state of contemplation or ecstacy. In another form the disease is chiefly characterized by fear, there being a constant apprehension of the punishments of hell: some other kind of insanity is frequently added to this. In a third variety of religious monomania the individual believes himself possessed by a devil,—a madness which was common in former times.

Dementia.

In this we no longer have a disease in which there is an exaggeration or diminution of the ideas, but in which these are abolished; they no longer exist. Dementia differs from idiotcy in that this last is congenital, while the former is acquired.

It may be primary, as in the dementia of old persons—their second childhood; or it may be consecutive, as when it follows some other disease of the brain, a circumstance which frequently happens: in such case it is often preceded by some form of monomania, sometimes by epilepsy, &c.

The disease is characterised by the loss of memory as to recent impressions, while those which are old remain. There is at first some fault in the association of ideas, and after a time entire loss of ideas and of judgment: the imbecility then becomes complete. Before this extreme state, however, there are lucid intervals, during which the passions (anger, for example) are capable of being excited.

Dementia is a disease which is generally very slow and chronic in its nature, but at other times we see it supervene suddenly, and then it is apt to lead to a fatal termination.

Besides the various moral and intellectual disorders which affect the insane, there are also certain diseased states of the motive and sentient powers which occasionally take place.

In some maniacs the sensibility is encreased; this, however, is rare, and on the great scale its diminution, or even abolition, is more common. The sensibility of the skin is sometimes so much paralysed, that the individuals may remain many hours, sometimes even a whole night, exposed to a cold atmosphere, with impunity. The same fact is occasionally witnessed as applied to the special senses: thus a patient has been known to have the eyes exposed to the glare of a bright sun, without shewing the slightest uneasiness.

As to motion, there is no disturbance which it may not display; and these may occur at any time—that is, they may precede, (which, however, is uncommon) or follow, or be contemporaneous with the mental aberration. Among these disturbances of various functions, some are independent of the mental affection, but others are intimately connected with it—as, for example, the palsy, peculiarly called that of insane persons. This kind of paralysis is generally at first slight, but gradually becomes more intense. We shall speak of it in three of its degrees.

1. Constraint in the movements of the tongue, and consequent difficulty in articulating words; stuttering. Such are the phenomena which are first remarked, and to which are added, after a longer or shorter time, gradual weakness of one or both lower extremities. This palsy, of which the course is usually progressive, may, however, disappear, in order to present itself again at another period, and often under the influence of passion. It does not appear, under such circumstances, to arise from organic disease of the brain.

2. The symptoms which I have mentioned may become more and more intense, while they do not at any time subside; the upper extremities also become enfeebled, and nervous lesions of sensation are developed, and are gradually extended.

3. The paralysis becomes complete and general; it extends to the muscles of the

larynx and pharynx, and to the muscles necessary to the performance of the more important functions. The nutrition of the body is diminished, and cicatrices are apt to open. The patients remain constantly in the same posture; they waste, and die exhausted. Sometimes death supervenes in the midst of convulsions, which come on during the paralysis, before this has arrived at its ordinary degree of intensity. This kind of paralysis is more common in dementia than in other forms of insanity.

The paralysis which accompanies mental alienation may last from about six months to four years; its medium duration is one year. Sometimes death takes place at the end of a month. The disease follows an irregular course, sometimes very gradual, and sometimes presenting alternations of increase and diminution, but almost always, after a time, passing into the third degree. Recovery is consequently extremely rare, and the prognosis most unfavourable; nevertheless, M. Esquirol states that he has seen some recoveries both from the palsy and from the insanity The frequency of this form of palsy differs according to the age of the patients. According to M. Calmeil, it is most common between 30 and 50: he has seen only two instances below 32, and after 60 it again diminishes in frequency. M. Esquirol has remarked that it is much dependent on the influence of circumstances anterior to the occurrence of the insanity; as, to venereal abuses, and to spirituous liquors. The greatest number of cases, according to M. Calmeil, are met with among soldiers. It is remarkable, with regard to sex, that the proportion of cases in which paralysis occurs differs considerably; out of a given number of insane males, the paralytic are as 1 to 3; in the same number of insane females, only as 1 to 18. This is in Paris. It is a curious fact, too, that there are more paralytic cases at Charenton than at the Bicêtre.

The occurrence of paralysis among the insane is also influenced by climate; it is less common in the south than here, and, in fact, there are more cases in Paris than in Montpellier, Toulouse, or Naples.

Epilepsy is a disease which frequently precedes insanity, and seems to be the immediate cause of its differing in this respect from paralysis, which, as we have seen, rather follows, and is the effect of the insanity. Of 628 epileptics, M. Esquirol found 347 insane. Among these individuals the greater number shew no disturbance of intellect, except during the few days succeeding their fit of epilepsy; but as the case advances, the insanity is apt to become permanent. It has also been observed that insanity was the more to be apprehended in those epileptics in whom that disease has come on early in life.

The digestive functions do not sympathize much with insanity; they are seldom affected in an injurious manner, at least primarily. Many maniacs digest extremely well—some gain flesh, and become fat. The bowels are not remarkably affected. The respiration rarely suffers. The circulation is in general normal, unless it be during a paroxysm, when it may be accelerated. According to a table prepared by MM. Leuret and Mitinier, of eighty-nine insane women, seven had the pulse above 100 in the minute; in ten it was from 90 to 97; in twenty-nine, from 70 to 79; in four, from 60 to 65; in one, less than 60, being from 50 to 59. The same pathologists have also endeavoured to ascertain to what extent the different kinds of insanity influence the frequency of the pulse; and they have found, that of twenty-five maniacs, from 26 to 66 years of age (giving an average of 50), the pulse was from 74 to 132, giving an average of 95. Of twenty-three maniacs, from 25 to 69 years of age (average 47), the pulse was from 67 to 123, giving a medium of 90. Of thirty-four maniacs, between 25 and 65 (average 44), the pulse was from 66 to 124 (average 89). Of thirty patients in a state of dementia, and whose ages were from 24 to 69 (medium 49), the pulse was from 54 to 167 (average 67).

Anatomical characters.—Can morbid anatomy explain all cases of insanity? Organic changes have been sought for, and some have been found, but which have long been regarded as mere complications, because they were found many times where no insanity had existed. An injected state of the vessels in various parts has been met with; softening also, and other changes; but nothing *special*—nothing which positively indicated mental alienation. M. Esquirol appeared to have established, many years ago, that in the greater number of cases no perceptible change was to be found in the brain of insane subjects, but, more lately, he has modified this opinion; still holding, however, that the organic changes rarely explain the intellectual disturbance. MM. Pinel, Grandchamps, Foville, Falret, Bayle, and Calmeil, have all investigated the subject, and under a triple aspect. They have inquired, first, are there organic lesions in insanity? —secondly, what are those lesions?—and, thirdly, do they vary? The answers are, that there are organic lesions — that they chiefly affect the brain and its meninges, and that they differ in their na-

ture, seat, and extent. It is ascertained, then, that there are certain anatomical lesions which are usually found in insanity, but the relation which they bear to the mental alienation is not ascertained; and a considerable difference of opinion exists on this point among those who have had apparently equal opportunities of investigating the question. I have myself seen in the brains of healthy subjects, who had not had any degree of intellectual disturbance, anatomical changes which have been usually attributed to insanity. Latterly it has been attempted to demonstrate that the degree of intellect was in proportion to the extent of the surface of the brain; the development of the faculties thus increasing according to the increase of the cineritious substance. It has also been said, in conformity with this idea, that, in insane persons, the anatomical changes were principally found in the grey matter: but it appears to me that there is no proof whatever of either of these assumptions. These authors say, when the intellectual faculteis alone are affected, there is then a portion of the grey substance diseased. But the nature of the intellectual disturbance varies according as the affection is acute or chronic. When it is acute, the cortical substance presents, according to M. Foville, a form of redness similar to that of erysipelas. This redness is uniform, or not—more or less diffused, or more or less superficial. Sometimes the cerebral substance has lost its consistence, while at others it is preternaturally firm. These lesions are most frequent in the frontal region, next in the parietal, and last in the occipital. When the disease is chronic, its seat is the same, but the affected portion is divided into two layers—one superficial, discoloured, indurated, and raised like a membrane; the other, lying beneath this, presents a rugose and granular surface. There are some cases in which the entire cortical substance is softened and separated from the white; in others the convolutions are partially or generally wasted, and occasionally cysts are formed at the points where the atrophy has occurred. The grey matter in the interior of the brain scarcely ever participates in these diseased states, unless it be in the cornu ammonis, which is frequently changed. Now if these alleged organic lesions were really constant, and always of the same nature, they would give us the anatomical characters of insanity; but I doubt that this has been ascertained, or that we know the nature of those changes which produce insanity.

The anatomists above mentioned have pursued their inquiry as to the state of the nerves, and M. Foville informs us, that in one case, where there were hallucinations as to objects of sight, he found the optic nerves indurated and coriaceous. The bones of the head also have been investigated, and it has been said, that where the brain was wasted the bones were thickened, so as to fill what had otherwise been void: in other instances the bones have been observed to be thin, almost to transparency, and friable.

The disturbance of the motive powers in the insane consists, as I have said, chiefly in paralysis. M. Calmeil, who has particularly investigated the organic changes which attend this, has not always found them the same. Other inquirers have been more fortunate, or less scrupulous, and affirm that they have found the same morbid changes in this as in those other cases of paralysis where there was no insanity. According to them, when there is simply a state of mental alienation, the grey substance alone is affected; when to this is joined paralysis, then the white substance participates in the morbid change. According to M. Foville it becomes more consistent, and the white more resplendent than natural.

Some forms of mental disease are characterised by more constant and striking changes: such, for example, is idiotcy, in which there is appreciable diminution in the size of the brain, and sometimes complete absence of certain parts; at others the grey substance is wanting, or is very hard. The mass of the brain seems to have been subjected, as it were, to a sudden arrest of its growth, and then we sometimes meet with cysts, or pouches, filled with serosity. The head, which in some is small, is in others very large; the forehead being depressed, but the other parts prominent. Occasionally there is nothing to remark about the head externally.

A foreign author affirms that in idiots other lesions may be found besides those in the head: thus the great sympathetic and its ganglions have been known to exhibit a considerable preternatural increase of size.

Chemistry and physics have both lent their aid to detect the cause of idiotcy. The brain, for example, of such persons is affirmed to yield less phosphorus than that of another person, and it is also said to be of greater gravity than that of the sane. Meckel, Levret, &c. hold this; others again, as Esquirol, Pariset, &c. maintain just the reverse; and the most recent investigations would seem to shew, that the weight of the brain of those affected with insanity is 1·31, while for those who have not so suffered it is 1·28.

[M. Andral here proceeds to discuss the merits of phrenology, of which he says in conclusion, that it is a science which con-

tains many valuable points, mixed up with much absurdity.]

Treatment of insanity.—Formerly the disease used to be treated by means of the abstraction of blood, a method praised by some, and condemned by others, but which is now only employed in certain cases at the onset of the disease,—when, for instance, there are signs of congestion or hyperemia. When the disease is chronic, in those who are feeble and without evidence of congestion, bleeding is regarded as injurious. If, however, there has been suppression of the hæmorrhoidal or menstrual discharge, then the abstraction of blood may be of use in effecting its restoration. The same remark as to procuring the restoration of the discharge applies to other evacuations as well as those mentioned, but with this provision, that their restoration is only to be regarded as an urgent indication, when the suppression has been the cause, not the consequence, of the attack.

Baths have also been employed; but much is not to be expected from them; and where they are used the head must be kept cool, to prevent the injurious effect they might otherwise have upon it. The application of ice and affusion may be useful in certain cases, but are not to be used without caution. Purgatives are not to be disregarded; they may be exhibited during several successive days, and then intermitted, in order to return to them again. Counter-irritants, as blisters, &c. to the neck, require caution. Sometimes there is a degree of atony which requires cinchona and other tonics. Camphor and digitalis have been especially praised in this disease, but their effects do not correspond to their reputation. Opium, also, has been lauded, but except in certain morbid cases of excitement it does more harm than good.

A foreign physician has eulogised mercury as an excellent remedy in insanity: according to him, an improvement takes place as soon as salivation has been established.

Formerly the insane were treated with great severity, and even with inhumanity; but, thanks to M. Pinel, a great improvement has been effected in this respect. A very important point in connexion with this part of the subject is, the removal of the patient from whatever interests his passions, affections, caprices, or habits. They must be completly insolated, and manual occupations adopted, such as walking, and other kinds of exercise. Travelling to a distance have been known to remove the disease. The effects of music and the *spectacle* have been tried, but abandoned as generally too exciting. Lively and sudden impressions have sometimes been had recourse to, occasionally with good effect, but often with just the reverse. The manner of the physician to his patient must vary with circumstances; it ought not to be severe, but firm, and such as to allow no control to the invalid. In general he ought to abstain from all argument with the insane, making him aware that he will obtain the object any reasonable request, but nothing more. It is of favourable omen when the patient learns to submit to the authority of his attendant.

AN ACT

TO

PROVIDE FOR THE ATTENDANCE AND REMUNERATION OF MEDICAL WITNESSES AT CORONERS' INQUESTS.

[Aug. 17, 1836.]

Summoning of Medical Witnesses.

I. WHEREAS it is expedient to provide for the attendance of medical witnesses at coroners' inquests, also remuneration for such attendance, and for the performance of post-mortem examinations at such inquests: Be it therefore enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, that from and after the passing of this Act, whenever upon the summoning or holding of any coroner's inquest it shall appear to the coroner that the deceased person was attended at his death, or during his last illness, by any legally qualified medical practitioner, it shall be lawful for the coroner to issue his order, in the form marked (A) in the schedule hereunto annexed, for the attendance of such practitioner as a witness at such inquest; and if it shall appear to the coroner that the deceased person was not attended at or immediately before his death by any legally qualified medical practitioner, it shall be lawful for the coroner to issue such order for the attendance of any legally qualified medical practitioner, being at the time in actual practice in or near where the death has happened; and it shall be lawful for the coroner, either in his order for the attendance of the medical witness, or at any time between the issuing of such order and the termination of the inquest, to direct the performance of a post-mortem examination, with or without an analysis of the contents of the stomach or intestines, by the medical witness or witnesses who may be summoned to attend at any inquest; provided that if any person shall state upon oath before the coroner that in

his or her belief the death of the deceased individual was caused partly or entirely by the improper or negligent treatment of any medical practitioner or other person, such medical practitioner or other person shall not be allowed to perform or assist at the post-mortem examination of the deceased.

Additional Medical Evidence, if the first be not satisfactory.

II. And be it further enacted, that whenever it shall appear to the greater number of the jurymen sitting at any coroner's inquest, that the cause of death has not been satisfactorily explained by the evidence of the medical practitioner or other witness or witnesses who may be examined in the first instance, such greater number of the jurymen are hereby authorized and empowered to name to the coroner in writing any other legally qualified medical practitioner or practitioners, and to require the coroner to issue his order, in the form herein-before mentioned, for the attendance of such last mentioned medical practitioner or practitioners as a witness or witnesses, and for the performance of a post-mortem examination, with or without an analysis of the contents of the stomach or intestines, whether such an examination has been performed before or not; and if the coroner, having been thereunto required, shall refuse to issue such order, he shall be deemed guilty of a misdemeanor, and shall be punishable in like manner as if the same were a misdemeanor at common law.

Fees to Medical Witnesses, and Funds for their Payment.

III. And be it further enacted, That when any legally qualified medical practitioner has attended upon any coroner's inquest in obedience to any such order as aforesaid of the coroner, the said practitioner shall for such attendance at any inquest in Great Britain be entitled to receive such remuneration or fee as is mentioned in the table marked (B.) in the schedule hereunto annexed; and for any inquest held in Ireland, the said practitioner shall be paid in the manner provided by the laws in force in that part of the United Kingdom; and the coroner is hereby required and commanded to make, according to the form marked (C.) in the schedule hereunto annexed, his order for the payment of such remuneration or fee, when the inquest shall be held in Great Britain, and such order may be addressed and directed to the churchwardens and overseers of the parish or place in which the death has happened; and such churchwardens and overseers, or any one of them, is and are hereby required and commanded to pay the sum of money mentioned in such order of the coroner, to the medical witness therein mentioned, out of the funds collected for the relief of the poor of the said place.

Fee not payable for a post-mortem Examination instituted without Order from the Coroner.

IV. Provided nevertheless, and be it further enacted, That no order of payment shall be given, or fee or remuneration paid, to any medical practitioner for the performance of any post mortem examination which may be instituted without the previous direction of the coroner.

Inquests on Bodies of Persons dying in public Institutions.

V. Provided also, and be it further enacted, That when any inquest shall be holden on the body of any person who has died in any public hospital or infirmary, or in any building or place belonging thereto, or used for the reception of the patients thereof, or who has died in any county or other lunatic asylum, or in any public infirmary or other public medical institution, whether the same be supported by endowments or by voluntary subscriptions, then and in such case nothing herein contained shall be construed to entitle the medical officer whose duty it may have been to attend the deceased person as a medical officer of such institution as aforesaid, to the fees or remuneration herein provided.

Penalty for neglecting to attend.

VI. And be it further enacted, That where any order for the attendance of any medical practitioner as aforesaid shall have been personally served upon such practitioner, or where any such order not personally served shall have been received by any medical practitioner in sufficient time for him to have obeyed such order, or where any such order has been served at the residence of any medical practitioner; and in every case where any medical practitioner has not obeyed such order, he shall for such neglect or disobedience forfeit the sum of five pounds sterling, upon complaint thereof made by the coroner, or any two of the jury, before any two justices having jurisdiction in the parish or place where the inquest under which the order issued was held, or in the parish where such medical practitioner resides; and two such justices are hereby required, upon such complaint, to proceed to the hearing and adjudication of such complaint; and if such medical practitioner shall not shew to the said justices a good and sufficient cause for not having obeyed such order, to enforce the said penalty by distress and sale of the offender's goods, as

they are empowered to proceed by an act of parliament for any other penalty or forfeiture.

Act not to extend to Scotland.

VII. And be it enacted, That nothing in this act contained shall extend to Scotland.

SCHEDULE TO WHICH THIS ACT REFERS.

(A.) *Form of Summons.*

Coroner's inquest at , upon the body of

By virtue of this, my order, as coroner for , you are required to appear before me and the jury at , on the day of , 18 , at o'clock, to give evidence touching the cause of death of , [*and then add, when the witness is required to make or assist at a post mortem examination*, and make or assist in making a post mortem examination of the body, with [*or* without] an analysis, *as the case may be*], and report thereon at the said inquest.

(Signed) , Coroner.

To , Surgeon [*or* M.D., *as the case may be*].

(B.) *Table of Fees.*

1. To every legally-qualified medical practitioner for attending to give evidence under the provisions of this act, at any coroner's inquest, whereat no post-mortem examination has been made by such practitioner, the fee or remuneration shall be one guinea.
2. For the making of a post-mortem examination of the body of the deceased, either with or without an analysis of the contents of the stomach or intestines, and for attending to give evidence thereon, the fee or remuneration shall be two guineas.

(C.) *Coroner's Order for the payment of Medical Witnesses.*

By virtue of an act of parliament passed in session of holden in the intituled I, the coroner of or for , do order you, the overseers of the parish [*or* township, *as the case may be*], to pay to the sum of [one guinea, *or* two guineas, *as the case may be*], being the fee [*or* fees] due to him for having attended as a medical witness at an inquest holden before me this day of , upon the body of , about the age of , who was found dead at , [*or other particulars or description*], and at which said inquest the jury returned a verdict of

(Signed) Coroner.

Witnessed by me of .

To the Overseers, &c. &c.

LECTURES ON OBSCENITY.

A CORRESPONDENT has asked us to notice certain gross blunders in Dr. Ryan's lectures—such, for instance, as where the *learned* Doctor says that *Lord Bacon* vouches for "the illustrious *Newton* never having had sexual intercourse," &c., his Lordship having been dead *sixteen years before Newton was born.* But the truth is, that though our attention has frequently been called to the said lectures, we never could persuade ourselves to meddle with them, filled as they are with beastliness and obscenity beyond description. We have long since thought that the Society for the Suppression of Vice has grossly neglected its duty in not taking cognizance of what is going on in that quarter.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *Aug.* 16, 1836.

Abscess	3	Hooping Cough	2
Age and Debility	56	Inflammation	27
Apoplexy	6	Bowels & Stomach	3
Asthma	7	Brain	3
Cancer	1	Lungs and Pleura	4
Childbirth	5	Insanity	2
Consumption	62	Jaundice	2
Convulsions	38	Liver, diseased	2
Croup	2	Measles	3
Dentition or Teething	8	Mortification	3
Dropsy	13	Paralysis	4
Dropsy on the Brain	10	Scrofula	2
Dropsy on the Chest	1	Small-pox	4
Erysipelas	2	Thrush	1
Fever	12	Unknown Causes	4
Fever, Scarlet	5		
Fever, Typhus	1	Casualties	14

Decrease of Burials, as compared with the preceding week } 19

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

Aug. 1836.	THERMOMETER.		BAROMETER.	
Thursday . 11	from 49	to 71	30·20	to 30 24
Friday . . 12	53	71	30·24	30·21
Saturday . 13	47	75	30·16	30·00
Sunday . . 14	54	73	29·86	29·82
Monday . . 15	53	69	29 82	29·96
Tuesday . . 16	51	70	30 05	30·04
Wednesday 17	56	74	29 99	30 01

Prevailing winds, N.E. and W. by S.

Generally clear, except the morning of the 11th and two following days; thunder and lightning, accompanied with rain, from 8 till 9 on the morning of the 14th: lightning in the north on the evening of the 13th.

Rain fallen, ·1 of an inch.

CHARLES HENRY ADAMS.

NOTICE.

"EON" had better occupy his pen more usefully: there is no practical interest in the paper he has sent us. Example is better than precept: why not try his hand at one of those biographies which he conceives to be such a desideratum?

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, AUGUST 27, 1836.

LECTURES ON MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture XLVIII.

The family Papaveraceæ will next engage our attention.

PAPAVERACEÆ.

Botanical description.—The plants of this family are not numerous: most of them are European, and herbaceous; and abound in a milky juice. The leaves are alternate, and more or less divided. The flowers are regular, and consist of a calyx, composed of two deciduous sepals; a corolla, usually of four, sometimes of eight or of twelve petals—(in one genus, Bocconia, the petals are wanting);—

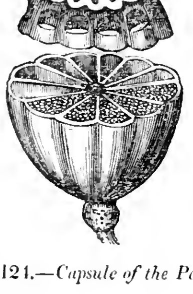


Fig. 121.—*Capsule of the Poppy.*

stamina hypogynous (in Eschscholtzia they are perigynous), eight, or some other multiple of four; a solitary ovarium—style either short or wanting, and stigmas alternate with the placentæ. The fruit is one celled, either pod-shaped or capsular.

The seeds are numerous (in Bocconia the capsule is monospermous), albuminous, with minute embryo.

The only species requiring notice are—

Papaver Rhœas, and
Papaver somniferum.

1. *Papaver Rhœas.*

The red poppy is a well known indigenous plant, belonging to *Polyandria Monogynia* in the Linnæan arrangement. From the beautiful red-coloured petals is prepared a syrup,—the *Syrupus Rhœados* of the Pharmacopœia,—useful merely as a colouring matter. It is prepared by infusing the petals in boiling water, and adding sugar, so as to form a syrup.

Some have asserted that this poppy contains morphia, but others have been unable to detect it. If it do contain morphia, the quantity must be very small; for the plant is not known to possess any narcotic property.

2. *Papaver somniferum.*

History.—This is one of the most anciently known and described plants. Homer (who lived at least 900 years before Christ, or more than 2700 years ago,) speaks of the garden poppy (*μηκων ἐνι κηπω*); so that it appears to have been in cultivation even in that early period. It was employed in medicine by Hippocrates, and is mentioned by Theophrastus, Dioscorides, and Pliny.

Hippocrates speaks of two kinds,—the *black* and *white poppy*; the former, he says, confines the bowels more than the latter. By most modern botanists these are considered as varieties of the same species

(P. somniferum), but Gmelin regards them as distinct, and calls the white one, P. officinale,—the black one, P. somniferum; and Nees von Esenbeck and Ebermaier, in their "*Handbuch der Medicinisch-pharmaceutischen Botanik*," adopt Gmelin's view.

Botanical description.—Although it is found growing wild in several parts of England, yet it is probably not a native of this country, but either of the southern part of Europe, or, what is still more probable, of Asia. It is a hardy annual plant, with a white tapering root, and a smooth, erect, branched, leafy stem, of a glaucous green colour, varying in height from two to six feet. The leaves are alternate, sessile, amplexicaul, ovato-oblong, deeply cut, smooth, on their upper surface greenish, glaucous beneath. Peduncles terminal, leafless, with bristly hairs; calyx two-leaved, deciduous; corolla of four large petals, generally white, with a violet spot at the base of each (in gardens, double varieties, of all colours, are met with); stamina numerous; ovarium globose, smooth,—no style,—stigma peltate. The fruit is capsular, superior, smooth, with one cavity, in consequence of the incomplete dissepimenta: each partial cell of the cavity opens under the rays of the stigma. The seeds are numerous, small, roundish or reniform, oily, sweet, and edible.

Varieties.—The following are the characters of the two varieties of this species:—

(α.) *nigrum:* capsules globose, opening by foramina under the stigma; seeds black; peduncles many. The flowers are usually violet or red, of different tints, though sometimes white.

(β.) *album* (*P. officinale*, Gm.): capsule ovato-globose; foramina under the stigma, either none or obliterated; peduncles solitary; seeds and petals white.

Cultivation. — In Hindostan, Persia, Egypt, and other countries of the East, the somniferous poppy is extensively cultivated, on account of the opium obtained therefrom. In Europe it is cultivated for the capsules, either as medicinal agents, or for the oil obtained from the seeds. The London market is principally supplied with poppy heads from the neighbourhood of Mitcham, in Surrey.

The *officinal products* of this poppy are *opium* and the *capsules:* the former, however, is such an important substance that I shall consider it separately.

Physical properties of the capsules.—Poppy heads are usually collected when quite ripe, but they would be more active as medicinal agents if they were gathered while still green. As met with in commerce, they vary somewhat in size, from a hen's egg to that of the fist. Their texture is papyraceous; on the top of them is the star-like stigma. They are yellowish, or yellowish-brown, and, if they have been collected before they were quite ripe, have a bitterish taste.

Chemical properties.—When gathered early, poppy heads contain both meconic acid and morphia. The first is readily detected by making an infusion of them in water and adding a persalt of iron (as the tincture of muriate of iron of the Pharmacopœia), which produces a reddish colour, owing to the formation of the permeconate of iron. Several chemists have obtained morphia from the capsules, though others have failed. The failure doubtless arose from the capsules being gathered when fully ripe.

The seeds yield, by expression, a bland oil, which is employed by artists; and on the continent it is used in domestic economy as a substitute for olive oil, as in salads, &c. One hundred pounds of the seeds yield about fifty-six pounds of oil.

Preparations: 1. *Decoction of poppy.*—This is prepared by boiling four ounces of the heads in four pints of water for a quarter of an hour. The seeds yield a portion of oil which increases the emollient qualities of the preparation, and therefore they ought not to be omitted. This decoction is a very common fomentation, applied to bruised, or inflamed, or swollen parts—to painful ulcers—to the abdomen, in inflammation of the peritoneum or bowels, &c.

2. *Syrup of poppies.*—In the London Pharmacopœia it is ordered to be prepared by macerating 14 ounces of the poppy heads (deprived of the seeds) in $2\frac{1}{2}$ gallons of boiling water, and then boiling down the strained liquor to one gallon; and after the dregs have subsided, converting the clear liquid into syrup by the addition of two pounds of sugar. It is very apt to decompose, and, therefore, should be kept in a cool place. Its effects are similar to those of opium: it is principally used for children, in doses of one or two drachms. Druggists sometimes substitute a mixture of treacle and tincture of opium for this syrup; but it is a fraud of a dangerous kind. Syrup of poppies which has been kept long, and has undergone fermentation, may contain either spirit or acetic acid, or both. I need hardly say, in this state it is objectionable.

3. *Extract of poppy.*—This is prepared by evaporating an infusion of poppies to a proper consistence. If a decoction be used, a great deal of inert mucilaginous matter is taken up. This extract produces, I believe, similar effects to those of opium; but it is frequently substituted for the latter, on the supposition that while it produces sleep and allays pain, it is less

liable to occasion nausea, headache, or delirium. Its dose is from two grains to a scruple.

Opium.

History.—It is uncertain at what period opium was first known, or introduced into medicine. Hippocrates recommends the ὀπὸς μήκωνος, or *poppy juice*, in a disease of the uterus; and Dioscorides, on the authority of Erasistratus, tells us that Diagoras (who was contemporary, it is supposed, with Hippocrates) condemned the use of opium. These are, I believe, the most ancient Greek authorities who speak of this substance; and it is impossible, I think, to arrive at any accurate conclusion from their remarks, whether opium had or had not been known long before their time, though Alston infers, from the little use made of it by Hippocrates, that its virtues were not known long before him. Dioscorides and Pliny mention that the expressed juice of the heads and leaves is termed *Meconium*, and that it is much weaker than opium.

Homer states that when Telemachus, in search of his father, arrived at the house of Menelaus, Helen, the wife of the latter, put into the wine a drug which, according to the poet, "assuages grief (νηπενθές) and causes oblivion of all evils, so that, whoever drank of the wine, could not shed a tear for a whole day, not even if his father and mother should die, nor if a brother or a beloved son were slain before him." Moreover, we learn from the poet, that Helen was taught the use of this grief-assuaging drug—this *Nepenthes*, by Polydamna, an Egyptian, the wife of Thon. Now, what was the substance to which Homer alludes? On this question there have been various speculations. Theodore Zwinger, and among more modern writers, Sprengel and others, think that it was opium. By some, however, it is thought to be a product of the Cannabis sativa, either an intoxicating liquor prepared from the leaves of this plant, or possibly a glandular secretion, which Professor Royle states is used by many Asiatics, both for wine and opium.

The word Opium is derived from ὀπος, *juice*, and therefore literally signifies *the juice*, just as we call Cortex cinchonæ *the bark*, by way of pre-eminence.

Extraction of opium.—The mode of extracting opium is to a certain extent similar in all countries, and consists in making incisions into the half-ripe poppy capsules, and collecting the exuded juice. According to Dioscorides, Kæmpfer, Kerr, and Texier, this juice is worked up into a homogeneous mass: whereas Belon and Olivier speak of the juice concreting on the poppy; and the first of these writers describes opium as consisting of agglomerated, small tears (*Lachrymæ opii*). Now, Guibourt, by examining the opiums of commerce by means of a magnifier, thinks he has discovered that the Smyrna and Persian (or Trebizond) opium, is composed of small agglutinated tears: whereas the Egyptian, and I would add the Indian, opium, is a homogeneous mass, and, therefore, must have been worked up in the manner described by Dioscorides, Kæmpfer, and others. One of the latest accounts of the method of obtaining opium is that given by M. Ch. Texier, of the process followed in Asia Minor:—"A few days after the flower has fallen, men and women repair to the fields and cut the head of the poppy horizontally, taking care that the incisions do not penetrate the internal cavity of the shell. A white substance immediately flows out, and collects in tears on the edges of the cuts. In this state the field is left for 24 hours, and on the following day the opium is collected by large blunt knives. Each head furnishes opium once only, and that to an extent of a few grains. The first sophistication which it receives is that practised by the peasants who collect it, and who lightly scrape the epidermis from the shell to augment the weight. This operation adds about $\frac{1}{12}$ of foreign matters. Thus collected, opium has the form of a glutinous and granular jelly. It is deposited in small earthen vessels, and beat up with saliva. When asked why water was not employed in the place of saliva, the answer was that water caused it to spoil. It is afterwards enveloped in dry leaves, and in this state is sold. The seeds of those poppies which have yielded opium are equally good for sowing the following year."

Properties and varieties of opium.—I have met with, in English commerce, five kinds of opium—namely, *Smyrna*, *Constantinople*, *Egyptian*, *Trebizond*, (called *Persian*) and *English opium*. These, therefore, require description. The specimens of *Indian opium* which I have in my collection are from private sources, as this variety is not met with in European commerce.

1. *Smyrna opium* (*Opium Smyrnæum*).—This is the *Turkey* or *Levant opium* of commerce. It occurs in irregular roundish or flattened masses of various sizes, rarely exceeding 2 lbs. in weight, enveloped in leaves, and surrounded with the reddish capsules of some species of Rumex (the *R. orientalis*, according to Koch, who obtained plants in the Royal Botanic Garden at Erlangen, from some of the fruit given him by T. W. C. Martius: but one of the editors of the "*Dictionnaire Universel de Matière Médicale*," says he has cultivated the plant, and that it is *R. Patientia*).

When first imported, the masses are soft, and of a reddish-brown colour; but by keeping, they become hard and blackish. Its lustre is waxy; its odour is strong and unpleasant, but we can hardly call it peculiar, since Thridace or lettuce opium also possesses it: its taste is bitter, acrid, nauseous, and persistent. M. Guibourt regards the masses as being made up of agglutinated tears, and on this account as being the purest met with. In this latter inference, however, I cannot agree with him, since it is frequently met with largely adulterated. In one sample weighing 10 ounces, I obtained 10 drachms of stones and gravel.

The quantity of *morphia* which can be obtained from this kind of opium is about 8 per cent. On an average, 10 per cent. of muriate of morphia of commerce (that is, muriate of morphia and codeia), may be procured. A chemical manufacturer in London tells me that in barter one ounce of muriate is considered to be equal in value to a pound of Turkey opium. Dr. Christison obtained two drachms of *narcotine* from half a pound of the best Turkey opium: hence we may estimate the quantity at about 4 per cent. The quantity of *codeia* in the muriate of morphia of the shops, Dr. Christison, in his work on Poisons, says is about $\frac{1}{30}$: but in a letter to Guibourt, he mentions it as being $\frac{1}{12}$. I presume, therefore, it varies considerably.

2. *Constantinople opium* (*Opium Constantinopolitanum*).—I am indebted to Professor Guibourt for an authentic sample of this. His description of it is as follows:—"There are two sorts of it: one in very voluminous irregular cakes, which are flattened, like the Smyrna opium. This is of very good quality. The other is in small, flattened, regular cakes, of a lenticular form, from 2 to $2\frac{1}{2}$ inches in diameter, and covered with a poppy leaf, the median nerves of which divide the disk into two parts. It has an odour similar to the preceding kind, but more feeble; it blackens and dries in the air. It is more mucilaginous than Smyrna opium." To this account I may add, that the cakes are never covered with the Rumex capsules, as those of Smyrna opium are.

Professor Guibourt says that this kind of opium yields only half the morphia procurable from the Smyrna opium. This, however, does not agree with the experience of Mr. Duncan, of Edinburgh, who has never failed to obtain an extraordinary quantity of muriate of morphia from it. From an experiment of Dr. Christison's, he calculates the quantity of muriate of morphia obtainable from it at 14 per cent.

3. *Egyptian opium* (*Opium Ægyptiacum*).—It occurs in round flattened cakes of about three inches diameter, covered externally with the vestiges of some leaf. It is distinguished from the two preceding varieties by its reddish colour, analogous to that of soccotrine, or hepatic aloes. By keeping it does not blacken like the other kinds; its odour is less strong, and somewhat musty. Guibourt says, that by exposure to the air it becomes soft.

The same pharmacologist tells us, it yields only $\frac{1}{4}$ of the morphia obtained from Smyrna opium. Dr. Christison, however, obtained about $10\frac{1}{4}$ per cent. of pure white muriate of morphia from it, which is about the quantity procured from good Turkey opium.

4. *Trebizond opium—Persian opium.*—Some years since a quantity of opium was imported into this country from Trebizond, in the form of cylindrical sticks, which by pressure have become somewhat angular. Their length is about six inches; their diameter about half an inch, a little more or less. Each one is enveloped in a smooth shiny paper, and tied with cotton; its colour is similar to that of soccotrine aloes. It has the opiate odour stronger than that of the Egyptian kind, but less than Smyrna opium, and mixed somewhat with a musty odour; its taste is intensely bitter. It is commonly termed in commerce Persian opium, but the specimens I received came from Trebizond. It is considered an inferior kind.

5. *Indian opium* (*Opium Indicum, seu ostindicum*). — Notwithstanding the immense quantity of opium procured in Hindostan, none of it finds its way to this country in the way of commerce; but about two-thirds of it are sent to Canton, and the remaining one-third to the Eastern Islands. In the "*Report from the Select Committee of the House of Lords, appointed to inquire into the present state of the affairs of the East India Company,*" 1830, the following are the quantities of Indian opium said to have been imported into China:—

In	1827-28	2,435 chests.
	1820-21	3,377 ....
	1823-24	5,930 ....
	1825-26	11,050 ....
	1827-28	9,475 ....
	1828 29	13,132 ....
	1829-30	16,305 ....

Each chest contains about one pecul, or 133 lbs. 5 oz. $5\frac{1}{3}$ drs. avoirdupois. As this drug is prohibited in China, the whole of it is smuggled into that country. The vessels anchor at Lintin, about seventy miles from Canton, and deliver the opium to the boats of the Chinese buyer. The Chinese use it for smoking, and prefer the Indian to Turkey opium for this purpose; though the latter seems to be rising in estimation. Thus, in 1828-29, there were

imported into China 1600 peculs of Turkey opium; in 1829-30, the quantity increased to 1800 peculs. The Chinese prepare an aqueous extract (called the *smokeable extract*,) from opium. Patna opium yields 50 or 51 per cent. of this; Malwa opium, 70 to 75.

The qualities of Indian opium vary with the district in which it is procured; but even from the same district its quality has been very unequal at different periods. The following are the principal varieties:—

(*a.*) *Malwa opium.* — Some years since this was regarded as an inferior quality; but it has been gradually rising in value, and now ranks among the best kinds. I have three different samples of it: two brought from India by pupils, and one given me by Dr. Christison. The latter is the purest kind of opium I ever saw. It is in a square cake, about three inches long, and the same in breadth, and one inch thick, having the appearance, as M. Guibourt has described it, of a well-prepared, shiny, dry pharmaceutical extract: its colour is dark-brown: its odour, I think, less powerful than that of Smyrna opium. Dr. Christison says it is more resinous.

Dr. Christison obtained 9½ per cent. of muriate of morphia from this fine kind of Malwa opium. The quantity of codeia is somewhat larger than in Smyrna opium. Guibourt, to whom I sent a good sample of Malwa opium (though much inferior to that received from Dr. Christison), found that it contained only one-third the quantity found in Smyrna opium. Dr. Smyttan obtained from 3 to 5 per cent. of morphia from Malwa opium.

(*b.*) *Bengal opium.*—I have no authentic specimens of this variety; but Dr. Christison describes it as having the form of balls, of about three and a half pounds weight, enveloped by agglutinated leaves; of a pasty consistence internally, and possessing a strong and pure taste and odour of opium.

Dr. Smyttan obtained from 2 to 3½ per cent. of morphia from Bengal opium.

As the provinces of Bahar and Benares are the only districts where opium is grown under the Bengal presidency, this kind of opium is frequently termed the *Bahar* or *Benares opium*. It is forwarded to the principal station at Patna, where it remains for some time before it is sent to Calcutta: hence its name of *Patna opium*.

We are told that the Chinese prefer the Patna opium to the other kinds for the purpose of smoking, its flavour being considered more delicate.

(*c.*) *Cutch opium.*—Under this name I have received a small cake of opium from Bombay, rather more than an inch in diameter, apparently enveloped with the remnants of leaves. Its odour is much less powerful than the Smyrna opium.

6. *English opium* (*Opium Anglicum*).—It is in flat cakes, enveloped with leaves. It resembles the Egyptian opium more than any other kind; its colour is that of hepatic aloes; it has a moderately strong opiate odour. Mr. Hennell states that it yields about 5 per cent. of morphia. The quantity of this alkali said to have been obtained from French and German opium is in some instances enormous. Thus Petit obtained from 16 to 18 per cent., and Caventou from 22 to 28 per cent., in French opium; and Biltz says, in German opium procured from the purple poppy (P. somnif. nigrum), he found from 16½ to 20 per cent. of morphia.

Chemistry of opium. — The following substances have been obtained from opium: — *Morphia, Codeia, Paramorphia, Pseudomorphia, Narcotina, Narceine, Meconine, Meconic acid*, gum, resin, *extractive*, a fixed oil, caoutchouc, *odorous matter*, ligneous matter, and various inorganic salts—as the sulphates of lime and potash. To these I might add others whose existence is less certain. Those printed in italics require individual examination. I propose to examine, first, the acid, and secondly, the basic substances of opium.

1. *Meconic Acid.*

History.—This acid was first noticed in opium in 1804, by Seguin; in 1805, Sertuerner also recognized it, and gave it the name it now bears, derived from μηκων, *a poppy*. For a long time it has been confounded with two other acids (*Metameconic* and *Pyromeconic acids*), which result from its decomposition either by boiling water or dry distillation.

Native state.—Hitherto it has been found in the genus Papaver only. In opium it probably exists partly in combination with morphia, or with some other base, and in part also as a free acid. At least an infusion of opium is distinctly acid; but whether the free acid is the meconic or some other acid, is not easy to determine.

Properties.—In the pure state it is white and crystalline, the crystals usually being in the form of white, transparent, micaceous scales. It is soluble in water and alcohol, and has the usual qualities of an acid—such as a sour taste, reddening vegetable blues, and uniting with bases to form salts. It very readily decomposes: thus boiling it in water causes the evolution of carbonic acid, and the formation of metameconic acid; the same change takes place by heating hydrated

meconic acid. When dry meconic acid is heated sufficiently, it decomposes, and gives rise to pyromeconic acid.

Composition.—The following is the composition of meconic acid, according to Leibig:—

	Per centage composition.	Atomic composition.	
Carbon	42·46	or 7 atoms = 7×6 =	42
Hydrogen	1·98	or 2 atoms	2
Oxygen	55·56	or 7 atoms 7×8	56
	100·00	1 atom meconic acid	100

Characteristics.—The following are the characteristics of meconic acid:—

(*a.*) *The persalts of iron redden meconic acid*, in consequence of the formation of a permeconate of iron. When the solution of the acid is strong, the red colour is very intense. If a solution of caustic potash be added to this red liquid, the hydrated red oxide of iron is precipitated, while meconate of potash is formed in solution. This redness is destroyed by the protochloride of tin (which deoxidizes the permeconates), and also by boiling the liquid with nitric acid.

Unfortunately, there are several other substances which produce a similar red colour with the persalts of iron. 1. *Sulphocyanic acid* and the sulpho cyanurets occasion a red colour (by the formation of the persulphocyanuret of iron), very similar to, though not identical with, that caused by the meconic acid. The action of the protochloride of tin, of potash, and of nitric acid, on the red persulpho-cyanuret of iron, is attended with similar alterations of colour to those produced by the action of those agents on the permeconate of iron, already noticed. 2. *The saliva of man and of the sheep* also reddens the persalts of iron, in consequence, it is supposed, of the presence of a sulphocyanuret in this secretion; though I suspect further evidence is required to prove this. 3. *Infusion of mustard* causes a red colour with the perferruginous salts, owing to the action on them of the *sulpho-sinapine* contained in mustard. Caustic potash, nitric acid, and protochloride of tin, act on the red solution as on the red solutions of permeconate and persulphocyanuret of iron. 4. If we treat *fulminate of silver with muriatic acid*, we obtain chloride of silver and a liquid which reddens the persalts of iron. Hydriodic acid or sulphuretted hydrogen may be substituted for the muriatic acid. When either muriatic or hydriodic acids are used, the liquid contains hydrocyanic acid and a compound of cyanogen with chlorine or iodine (according as the muriatic or hydriodic acid has been employed). When sulphuretted hydrogen is used, possibly some sulphocyanic acid or sulphocyanogen may be generated. 5. The *Spiræa ulmaria* contains an acid (probably the sulphocyanic), which reddens the persalts of iron. 6. *Metameconic* and *pyromeconic acids* also redden the salts of iron. 7. *Indigotic acid* also. The action of potash and of nitric acid on this perindigotate of iron is similar to that on the permeconate.

(*b.*) *The protosalts of iron* produce no visible change on meconic acid; but by exposure to the air the liquid containing these substances attracts oxygen, and becomes red; or the same thing takes place immediately on the addition of nitric acid. The same phenomena are observed with sulphocyanic acid, and with the infusion of mustard.

(*c.*) *The chloride of gold* added to meconic acid produces no obvious alteration: by the application of heat, however, a purplish coloured precipitate is formed, and subsequently the gold is reduced. This test will distinguish meconic from sulphocyanic acid. When chloride of gold is added to the latter acid, a red solution is formed, owing to the formation of the persulphocyanuret of gold. By boiling the liquid, the red colour disappears. If sulphocyanate of potash be substituted for sulphocyanic acid, a pale red sulphocyanuret of gold precipitates. If caustic potash be now added, the precipitate is dissolved, and the liquid, which is at first yellowish, becomes, in a few minutes, of a deep green colour, depositing a dark green precipitate. If potash be added to the solution of meconic acid and chloride of gold, and then heat applied, a purple precipitate is formed. Chloride of gold added to infusion of mustard gives the liquid a red tinge, and occasions a light-coloured precipitate.

(*d.*) *A solution of sulphate of copper* gives to a solution of meconic acid a slightly greenish tinge, and after some time a yellowish-green precipitate falls. If meconic acid be added to a weak solution of the ammoniaco-sulphate of copper, this effect takes place more speedily.

Permeconate may be distinguished from the persulphocyanuret of copper by the following proceeding:—Add to the cupreous solution an excess of a solution of the protosulphate of iron: no precipitate

is produced if the permeconate of copper only be in solution; but if there be any persulphocyanuret, a white powder (the protosulphuret of copper) is thrown down, while a red liquid (persulphocyanuret of iron) is formed.

(*e.*) *A solution of acetate of lead* produces with meconic acid a white precipitate of the permeconate of lead, soluble in nitric acid.

(*f.*) *A solution of nitrate of silver* dropped into a solution of meconic acid occasions a white precipitate of the meconate of silver, soluble in nitric acid. Sulphocyanic acid, or the sulphocyanurets, occasion with the salts of silver a white curdy precipitate of the sulphocyanuret of silver.

If to meconate of silver a little more nitric acid be added than is sufficient to dissolve it, and heat be applied, cyanuret of silver in a flocculent form falls down, (and may be recognised by the odour of hydrocyanic acid on the addition of muriatic acid), while oxalate of silver remains in solution.

(*g.*) *A solution of chloride of barium* produces with meconic acid or a soluble meconate, a white precipitate of the meconate of barytes.

Effects of meconic acid.—Meconic acid is an inert substance. Sertnerner swallowed five grains of it without observing any effect; Sömmering gave ten gains to a dog; Feneglio and Blengini eight grains to dogs, crows, and frogs, and four grains to various men: in all cases no effects were observed.

Combined with bases, it doubtless modifies their action. Meconate of soda, however, is not active, as Sertnerner asserted. It is supposed that the effect of the morphia in opium is modified by its combination with meconic acid.

Uses.—I have already mentioned that this acid is said to be an antidote in cases of poisoning by corrosive sublimate *. If, however, the statement be true, the fact is of little practical value, on account of the scarcity of the acid; for neither opium nor laudanum can be given in quantity sufficient to neutralize the effect of corrosive sublimate, without themselves acting as poisons. Moreover, we have other good and easily accessible antidotes for sublimate.

Metameconic acid.—When meconic acid is boiled in water, carbonic acid is evolved, and the metameconic acid is found in solution. The decomposition will be readily comprehended from the following diagram:—

	Carbon.	Hydrogen.	Oxygen.
2 atoms meconic acid consist of	14 atoms	4 atoms	14 atoms
2 atoms carbonic acid consist of......	2 atoms	....	4 atoms
1 atom metameconic acid composed of	12 atoms	4 atoms	10 atoms

Hence its atomic weight is—

$$200 - 44 = 156$$

The characters of this acid are: it is crystalline, the crystals being hard and granular, and much less soluble in water than those of meconic acid. Like the latter acid, it reddens strongly the persalts of iron. The neutral metameconates of potash and ammonia are not very soluble in water. By distillation this acid yields pyromeconic acid.

Pyromeconic acid.—This acid is obtained by the dry distillation of meconic or metameconic acid. The results of the process are—water, carbonic acid, colouring matter, and pyromeconic acid. It differs from meconic and metameconic acids in containing less carbon and oxygen than either of them.

	Carbon.	Hydrogen.	Oxygen.
2 atoms meconic acid consist of	14 atoms	4 atoms	14 atoms
2 atoms carbonic acid consist of......	2 atoms	....	4 atoms
1 atom metameconic acid	12 atoms	4 atoms	10 atoms
2 atoms carbonic acid	2 atoms	....	4 atoms
2 atoms hydrous pyromeconic acid ..	10 atoms	4 atoms	6 atoms
1 water	....	1 atom	1 atom
1 atom anhydrous pyromeconic acid ..	10 atoms	3 atoms	5 atoms

* See MEDICAL GAZETTE, p. 474 of the present volume.

The characters of this acid are the following:—It is a fusible solid, which in the fused state has a resemblance to oil: it is entirely volatile: it reddens the persalts of iron. With bases it forms salts, which are for the most part soluble in water. The neutral pyromeconate of lead, however, is insoluble. This acid is isomeric with dry pyrocitric acid, and with hydrated pyromucic acid.

2. *Morphia.*

History.—Several of the older chemists mention a *crystalline salt* obtained from a solution of opium. Thus Wedelius, Hoffmann, and Neumann, have alluded to it, but they formed no correct notions of its nature. Merat and De Lens state that morphia was first signalized under the name of "*Magistery of Opium*," by Ludwig, in 1688. In the year 1803, Derosne obtained morphia, and noticed its alkaline properties, which he attributed to the mineral base employed in the process: in fact, he seems to have regarded morphia as a compound of his "crystalline substance," (narcotina,) and of the mineral alkali used in its extraction. In 1804, morphia was recognized as a constituent of opium, and as possessing alkaline properties, both by Seguin and Sertuerner. The latter, however, erroneously asserted that the crystalline principle of Derosne (narcotina) was a meconate of morphia. In 1817, Robiquet established the fact that morphia and narcotine are distinct substances, and exist simultaneously in opium.

Native state.—Morphia is obtained from the genus Papaver, and it is yet uncertain whether it exists in any other genus; though, as already mentioned, Lactuca has been said to yield it.

The acid condition of an aqueous infusion of opium proves that morphia must exist in combination with an acid, but with what acid is not easy to determine. For a long period it was thought to be the meconic; now it is supposed to be, in part at least, sulphuric acid. Probably both meconate and sulphate of morphia exist in opium.

Properties.—Pure morphia presents itself under the form of transparent crystals, whose primary form is the right rhombic prism. Notwithstanding that it is insoluble, or nearly so, in cold water, it has a marked bitter taste. Boiling water dissolves a little more than $\frac{1}{100}$ part of its weight of morphia. It dissolves in 40 parts of cold anhydrous alcohol, and in 30 parts of boiling alcohol; but it is insoluble, or nearly so, in æther. It is soluble in the oils (fixed and volatile), in the alkalies, potash, soda, and (in less quantity) in ammonia;—lastly, it readily dissolves in sulphuric, muriatic, and acetic acids. When heated, the crystals lose their transparency and water of crystallization: a strong heat causes them to enter into fusion, in which state they form a yellow liquid similar to melted sulphur, and which becomes white and crystalline on cooling. Heated in the open air, it burns like resin, and leaves a carbonaceous residuum.

Composition.—The following is the composition of anhydrous morphia, according to Liebig:—

Carbon	72·20, or 34 atoms	6 × 34 =	204
Hydrogen	6·24, or 18 atoms		18
Nitrogen	6·92, or 1 atom		14
Oxygen	16·66, or 6 atoms	6 × 8 =	48
	100·02, or 1 atom of anhydrous morphia		284

In the crystallized state morphia is hydrated, and has the following composition:—

Anhydrous morphia	94·2, or 1 atom		284
Water	5·8, or 2 atoms	9 × 2 =	18
	100·0, or 1 atom crystallized morphia		302

Characteristics.—The following are the tests for morphia:—

1. *Nitric acid* added to morphia or its salts (the chlorate excepted), becomes of an orange-red colour, which soon passes to yellow. If we employ nitric acid diluted with about an equal volume of water, the red colour is not so quickly produced, but it does not disappear so speedily. By the prolonged digestion of morphia in nitric acid, we obtain oxalic acid. Ammonia added to the red solution darkens the colour. Chlorate of morphia is only made yellow by nitric acid.

Nitric acid produces a similar red colour with some other substances: thus with *emetina*, *brucia* and its salts, and with *impure strychnia*; also with the volatile oils and resinous bodies. Thus, if we add nitric acid to the oil of pimento, dissolved in a small portion of spirit of wine, or in an alkaline solution, a red colour is formed, similar to that developed by the contact of nitric acid with morphia. An infusion either of cloves or of pimento is reddened by nitric acid; and the colour of the solution is heightened by ammonia.

2. *Iodic acid* is a delicate test for morphia. When a little of this alkali, or any of its salts, is added to a solution of iodic

acid, the latter becomes reddish-brown, owing to the separation of some free iodine. The presence of this latter substance is shown by adding a solution of starch, which forms with it the blue compound termed iodide of starch. This effect takes place with very minute portions of morphia, and may even be observed in the tincture of opium. It appears that the morphia abstracts oxygen from the iodic acid, but the precise nature of the resulting compound (or compounds) has not been ascertained, though Serullas thought an ioduret and an iodate of some new base were formed.

I am not acquainted with any other vegetable alkali which has this effect on iodic acid, though several mineral substances have. Thus a solution of sulphuretted hydrogen or of sulphurous or of phosphorous acids has this effect; and on the addition of starch, the blue iodide is formed.

3. If morphia or its neutral salts be dropped into a strong solution of the *perchloride of iron*, a blue compound is formed. In order to observe this effect it is essential that very little water only be present. If there be much, we obtain a dirty indigo blue solution; and if there be a great excess, the liquid acquires a roseate tinge. Acids and alkalies (as sulphuric or nitric acids, or caustic potash), destroy the blue colour. The nature of this blue compound is not completely understood. It is probable that part of the morphia is oxidized, while a portion of the perchloride is converted into protochloride of iron, and that the two new resulting compounds unite.

If the tincture of muriate of iron of the Pharmacopœia be added to some of the essential oils (oil of cloves or pimento, for example), a similar blue colour is produced. If, however, an aqueous solution of the perchloride (or permuriate) of iron, obtained by digesting the red oxide of iron in liquid muriatic acid, be added to these oils, no blue colour is developed; but if a small portion of spirit of wine be added, it immediately appears. A watery solution, however, of the perchloride of iron produces a blue colour with morphia, without the addition of spirit. The tincture of muriate of iron produces a similar blue colour with an aqueous infusion of cloves or allspice: a watery solution of the chloride or muriate of iron has the same effect.

4. A solution of the *acetate of copper* is changed from blue to green by the addition of a small portion of morphia, especially if assisted by heat. This also probably arises from the deoxidizing influence of the morphia. This test is one on which little or no reliance can be placed.

The *carbonates of the alkalies* occasion a white precipitate of the carbonate of morphia, with solutions of the morphitic salts.

6. *Solution of ammonia* precipitates morphia from its solution in acids: a great excess of ammonia, however, redissolves it. Hence, in dilute solutions, ammonia does not occasion any precipitate until heat be applied to drive off the excess.

7. *Infusion of galls, or solutions of tannic or gallic acids,* occasion dirty white precipitates of the tannate or gallate of morphia. These precipitates are soluble in acetic acid.

Effects and uses.—These will be examined hereafter. Pure morphia is given in doses of from $\frac{1}{4}$ to $\frac{1}{2}$ a grain, in the form of pills. Its pharmaceutical preparations will be spoken of hereafter.

Morphitic salts.—Most of these are crystallizable, and when pure, are colourless. They have a bitter taste, and are affected by various reagents, as already described for morphia.

(*a.*) *Sulphate of morphia.*—This salt probably exists ready formed in opium. The best method of procuring it is by dissolving morphia in dilute sulphuric acid. The warm solution being evaporated, yields crystals on cooling.

This salt crystallizes in needles, and is soluble in twice its weight of water. It has some resemblance to sulphate of quinia, from which it is readily distinguished by its reddening on the addition of nitric acid. In its crystallized state it consists of—

1 atom morphia	284
1 atom sulphuric acid	40
6 atoms water, 9 × 6	54
1 atom crystallized sulphate of morphia	378

When this salt is heated to 268° F. it loses four atoms of water (called its water of crystallization), but retains two atoms (termed in consequence its combined water), and which cannot be separated without destroying the salt.

Uses.—This salt is preferable to the acetate, as a medicinal agent, because of the uniformity of its composition and properties: it is not decomposed by drying, as the acetate is, and it is less likely to contain narcotina. There is no subsulphate. The dose of this salt is a quarter of a grain, gradually increased. Magendie has seen four grains taken in the day without inconvenience.

Bisulphate of morphia may be readily formed by adding sulphuric acid to the sulphate, and removing the excess of acid by æther, which does not dissolve the bisulphate.

2. *Muriate or hydrochlorate of morphia.*—

This salt must not be confounded with the muriate of morphia usually sold in the shops, and which is generally a muriate of morphia and codeia. To distinguish the latter, it is sometimes called *Gregory's salt*, or *Gregory's muriate.*

Pure muriate of morphia is obtained by saturating muriatic acid with morphia. It crystallizes in penniform or needle-like crystals, and requires from sixteen to twenty parts of cold water, but much less of boiling water, to dissolve it; and when we evaporate the solution a congealed mass is obtained on cooling. It is reddened by contact with nitric acid, and becomes blue on the addition of the perchloride of iron. When dried by the water bath it consists of—

1 atom morphia	284
1 atom muriatic acid	37
1 atom muriate of morphia,	321

3. *Acetate of morphia.*—This is prepared by dissolving morphia in diluted acetic acid, and carefully evaporating the solution to dryness by a water bath. By this mode of proceeding we obtain it dry, without excess of acid, and in a pulverulent form. Notwithstanding that this is the most frequently employed morphitic salt, there are several objections to its employment. Thus it is very deliquescent and difficult to crystallize, and easily decomposes when its solution is being evaporated: it even decomposes by keeping. When the neutral acetate is put into water, it decomposes into a soluble superacetate, and an insoluble subacetate These reasons lead us to prefer the sulphate, or muriate, for medicinal use. The dose of the acetate is the same as that of the sulphate.

3. *Codeia.*

History.—This alkali was discovered by Robiquet, in 1830. He termed it *Codeine*, from *κώδεια, a poppy head.*

Properties. — It is a white crystalline solid, slightly soluble in cold, and still more so in boiling water. It is soluble in æther. If more codeia be added to boiling water than this liquid can dissolve, the excess melts and forms an oily layer at the bottom of the vessel; and by cooling, a crystalline mass is obtained. It possesses distinct alkaline properties, and unites with acids to form salts.

Composition.—In the anhydrous state it consists of—

Carbon	72·0	or 31 atoms 31×6	186
Hydrogen	7·5	or 20 atoms.................	20
Nitrogen	5·4	or 1 atom	14
Oxygen	15·1	or 5 atoms 5×8	40
	100·0	or 1 atom codeia....	260

The crystals consist of—

1 atom codeia	260
2 atoms water	18
	278

Characters. — From morphia, codeia is distinguished by its not becoming blue on the addition of perchloride of iron. It is also said not to redden nitric acid like morphia. The specimens of codeia which I received from M. Pelletier became orange yellow on the addition of nitric acid. Moreover, ammonia does not precipitate it from its solution in muriatic acid; and on this depends the process for separating morphia from codeia. From meconine it is distinguished by its aqueous solution possessing marked alkaline properties. Thus it restores the blue colour of litmus which had been reddened by an acid, and it unites with acids to form salts. Couerbe says, that if sulphuric acid, mixed with a little nitric acid, be added to it, a green colour is developed, which, after some time, becomes violet. But this does not accord with my experiments: I find, on the addition of the mixed acid, the codeia becomes red, and a yellowish liquid is formed. Tincture of nut-galls produces a copious precipitate in solutions of codeia.

Salts of codeia.—These have not as yet been much studied. The *nitrate* crystallizes with great facility. The *muriate* is composed of 1 atom muriatic acid = 37, and 1 atom of codeia = 260, and its atomic weight, therefore, is 297. The *gallate* is insoluble in water. The *double muriate of morphia and codeia* (called by our French neighbours *Sel de Gregory*), is the salt which has been for some time sold under the name of the *muriate of morphia.*

Effects.—The effects of codeia and its salts have been examined by Kunkel, Gregory, Barbier, and Magendie; but the results are very contradictory. Kunkel says it is a local irritant, becomes absorbed, excites the circulation, and produces convulsions; but that none of the animals on which the codeia was tried were either stupified or paralyzed. Magendie, however, says it causes sleep, and when exhibited in large doses, stupor. He considers one grain of codeia equivalent to half a grain of morphia; two grains excite nausea and vomiting. Barbier also states it produces sleep.

Uses.—Magendie proposes to use it as a

substitute for morphia, to procure sleep and allay pain, in doses of from 1 to 3 grains.

4. *Narcotina.*

History.—This substance was first procured by Derosne, in 1804; it was long known by the name of the *crystalline matter of Derosne*, or *Derosne's salt*. Its name, *Narcotine*, is derived from ναρκωτικος, *narcotic.*

Properties.—It is a crystalline substance, distinguished from morphia by being insipid, very soluble in æther, and by its not becoming blue on the addition of the perchloride of iron. It does not affect vegetable colours, and by this character is readily distinguished from both morphia and codeia. It is insoluble in cold water, and is very slightly soluble only in boiling water.

Composition.—It is composed of

Carbon	65·27,	or 40 atoms	40 × 6 =	240
Hydrogen	5·32,	or 20 atoms		20
Nitrogen	3·78,	or 1 atom		14
Oxygen	25·63,	or 12 atoms	12 × 8 =	96
	100·00,	or 1 atom narcotina		370

Narcotina salts. — Narcotina combines with acids to form salts; which, however, have been very little examined. They are more bitter than those of morphia, redden litmus, and are precipitated by infusion of galls and by alkalies.

Effects of narcotina.—It was at first asserted that narcotina was the stimulant principle of opium; and Magendie states a grain of it, dissolved in olive oil, produced the death of a dog in twenty-four hours, while twenty-four times this quantity might be given, dissolved in acetic acid, with impunity. Orfila, at one time, declared it was inert, then that it acted like morphia, and subsequently that its operation was remarkable and peculiar. Bally asserts, that in a solid state it is inert; for 120 grains may be given, at one dose, without exciting any obvious effect. The truth is, I believe, that narcotine possesses very little activity, and that the first experimenters with it used an impure substance.

5. *Narceine.*

History.—In 1832, Pelletier announced this substance as a new alkali in opium, and which he named *Narceine*, from ναρκη, *stupor.* By others it has been termed Narceia. Subsequently, Pelletier has expressed his doubts as to its being an alkali.

Properties. — It is a white crystalline solid, with a slightly bitter, and even somewhat metallic taste. It dissolves in 230 parts of boiling water, or 375 parts of water at 60°. It fuses at about 198°, and at a higher temperature is decomposed.

Composition.—It is composed of—

Carbon	54·73	or 32	32×6 =	192
Hydrogen	6·52	or 20		20
Nitrogen	4·33	or 1		14
Oxygen	31·42	or 16	16×8 =	128
	100·00	or 1 atom narceine		354

Characteristics. — Narceine has several very striking properties by which it is distinguished from other substances. The first of these deserving notice is the action of mineral acids on it. Thus the sulphuric, nitric, and muriatic acids, so diluted with water that they cannot alter the elementary composition of narceine, give this substance a fine light-blue colour immediately on coming in contact with it. This alteration of colour does not appear to depend on any change in the elementary composition of narceine, since, by saturating the acids with ammonia, the narceine is precipitated unchanged. When much water is added, the blue colour disappears.

Another remarkable trait of narceine is, that it forms a blueish compound with iodine: heat and alkalies destroy the colour. Here you will observe, then, that iodine is not an absolute test for starch.

The characters now mentioned are sufficient to distinguish narceine from all other known substances. I may, however, add, that it does not form a blue colour with the perchloride of iron, as morphia does.

Effects.—Two grains have been several times thrown into the jugular vein of a dog, without producing any appreciable effect.

6. *Meconine.*

History.—In the year 1830 Couerbe (then superintendent of Pelletier's laboratory) discovered a crystalline principle in opium, to which he gave the name of *Meconine*, from μηκων, *a poppy.* The same

substance, though according to Pelletier it was mixed with codeia, had been obtained four years previously by Dublanc, junior.

Properties.—It is a white crystalline solid; its taste, which at first is hardly perceptible, is sensibly acrid; it fuses at 194° F. (as in boiling water), and at a stronger heat may be distilled. It dissolves in 265 parts of cold water, or in eighteen parts of boiling water.

Composition.—It is remarkable that meconine contains no nitrogen; its constituents are—

Carbon	60·23	or 9 atoms, 9 × 6	54
Hydrogen	4·74	or 4 atoms	4
Oxygen	35·03	or 4 atoms, 8 × 4	32
	100·00,	or 1 atom meconine	90

Characteristics.—It is distinguished from morphia by its greater fusibility, its greater solubility in water, and its not becoming blue on the addition of the perchloride of iron.

Cold *sulphuric acid* dissolves meconine, the solution being limpid and colourless. If heat be applied, the liquid assumes a dark colour (Couerbe says it is green; I found it purple.)

If *chlorine gas* be passed over fused meconine, the latter becomes coloured blood red, and on cooling forms crystals. The compound thus formed is composed of chlorine and some organic base: if the first be removed by oxide of silver, a white acid is obtained, which Couerbe calls *mechoic acid* (because it is formed of meconine and chlorine.)

Effects.—A grain dissolved in water, and injected into the jugular vein of a dog, produced no remarkable effect. Further experiments, however, are required before we can positively declare it to be an inert substance.

OBSERVATIONS

ON

THE SUDDEN DEATH OF CHILDREN,

From Enlargement of the Thymus Gland.

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The fact that children, apparently in good health, sometimes die suddenly — that is, in the space of a minute or so—is too well known to render any thing more than the mere allusion to it necessary; but the cause, or at least one of the occasional causes, is not so well understood. I have now seen several instances of a very singular mode of death in children, and there are some gentlemen in this city who have witnessed the cases with me, and seen the results. I allude here to those cases in which young children are suddenly cut off by an undue enlargement of the thymus gland.

A minute account of the form, structure, and relations of the thymus gland, would be here misplaced, and does not appear necessary; but as there may be some to whom the matter may not be so familiar, I trust I shall be excused for touching briefly on this point. The thymus gland is a peculiar body, discoverable in the fœtus about the third month of intra-uterine life, and in the fourth month presenting itself as a distinct organ occupying the upper and anterior part of the thorax. About the time of birth it possesses considerable size, and is lodged behind the superior part of the sternum, lying over the lungs and heart. It covers a considerable portion of the lungs and pericardium, passes through the superior aperture of the thorax, and extends upwards as far as the thyroid gland; part of it is therefore confined by a bony case, and part of it free; being covered in the neck merely by the integuments and a thin layer of muscular substance. Its tissue is soft, loose, and pulpy, and contains a vast number of small cells opening into a large reservoir. This reservoir is as large, in proportion to the gland, as one of the ventricles is to the heart, and is very well represented in one of the plates to Sir A. Cooper's work*. The cells of the organ are filled with a whitish or cream-coloured secretion, which has some of the properties of chyle. The parenchyma of the gland is very soft, spongy, and highly distensible. Its supply of blood is also very remarkable. This is furnished by four large arteries, of which the two superior are generally branches of the thyroid arteries; the two inferior ones are derived from the internal mammary. Its veins (and this is a point deserving of attention) are also divided into two sets, the upper opening into the thyroid veins, the

* On the Anatomy of the Thymus Gland, Plate iv, fig. 6.

lower emptying themselves into the left vena innominata.

The thymus gland is then a soft, spongy, and highly distensible organ, forming, in the newly-born infant, a mass of considerable size, situated in the upper part of the thorax, and extending up the neck as far as the thyroid gland, partly free and partly confined, lying over the pericardium, lungs, and the roots of the great vessels, abundantly supplied with blood, and capable from its position of exercising, under certain circumstances, a considerable degree of pressure on the trachea and left vena innominata. Its ordinary weight at birth is about half an ounce, or 240 grains.

If we examine the superior aperture of the thorax, and observe that in this situation we have the trachea, œsophagus, the great arteries of the head and upper extremities, the venæ innominatæ, and the phrenic and pneumogastric, recurrent, and sympathetic nerves; if we reflect also that in this situation we have an organ of considerable dimensions, and capable of great distension, we can easily understand that any deviation in point of size will produce important results with respect to the condition of the surrounding organs. In the natural condition, this gland does not produce any inconvenience; but when it becomes enlarged either from temporary and accidental causes, or more permanently from disease, so as to exercise a sudden or inconvenient pressure on the surrounding organs, we should expect corresponding changes in the condition of these parts. Hence it is, that enlargement of the thymus gland is frequently connected with sudden and remarkable alterations in the state of the great vessels, heart, lungs, and brain.

Having mentioned these facts, I shall proceed to detail a few cases of this remarkable affection. The form in which I have observed it myself, and in which it has occurred to others, is this: —Children in apparently good health, and who have even attracted attention by their florid complexion and high condition, are observed, when thwarted, frightened, awaking from sleep, or swallowing, or when under the influence of any mental emotion, to become all at once violently agitated; the hands are thrown up, the features become fixed, the eyes staring, and the breathing suspended; in a short time the fit ceases, and respiration and vital power are restored, or the infant drops its head on the nurse's shoulder, and dies. The first thing which occurs when the paroxysm ceases, is a slight fine whistling inspiration, as if the respiratory act was for the first time established.

The first time my attention was directed to this subject was on receiving, about seven years ago, from Dr. Neason Adams, of this city, an enlarged thymus, of which he has given me the following account:—The child from whom it was removed began to be affected, when eight months old, with what was considered spasm of the glottis, and, under the Doctor's judicious treatment, got so much better that it was not thought necessary to continue the administration of the remedies employed; the attacks, however, returned, and a repetition of the former medicines was about to be sent for; but one morning, when at the breast, and apparently as well as possible, its head dropped back on the mother's arm: she immediately ran towards the window, but, before she could get there, every sign of life had ceased, without fit or struggle of any kind.

Another case communicated to me by the same gentleman is most painfully interesting. The child was brought to the Doctor, that he might see the great amendment that had taken place in its state of health, and to have the gums examined: which latter examination he declined, as the attempt had, on two former occasions, brought on a paroxysm. The mother not being satisfied, and anxious to have the gums examined, undertook to separate the jaws of the child; doing so brought on the attack, and in an instant the child was a corpse in her arms.

The next case was one which occurred in my own practice. It was the child of a lady, who had been herself very delicate in childhood, and was of a rather feeble habit in after life. She had also been subject to some affection of the throat, the nature of which I could not ascertain. The child, which was a boy, was born in August; about three weeks after his birth he appeared agitated and affected in his breathing when startled or awaking from sleep. This was at first regarded as accidental, but as the fits continued to recur at intervals, the parents took the alarm, and sent for me to see him. I saw that there was something wrong, and endeavoured to find out the cause, but could not discover any thing in the chest or elsewhere, to account for the occasional affection of the respiration, and the child was in other respects handsome, healthy, and thriving. The first severe attack it had was on Dec. 10, at night; the child awoke suddenly, started, screamed, and threw up its arms. When lifted up, it stared with an expression of wildness and distress, its features were fixed, and the respiration entirely suspended. On throwing up the window sash, and letting in a stream of fresh air, it began to breathe, but with considerable difficulty, and the agitation continued for several hours. On seeing the child, I thought that the sudden suspension of

respiration might be connected with an affection of the brain, and under this impression prescribed some calomel powders, and a blister to the nape of the neck, which produced relief. The next attack which it had was Dec. 13, in giving it some medicine. The nurse threw it on its back, held its hands, and tossed the medicine down its throat. A fit similar to the former, and still more alarming, was the almost immediate consequence. After this it was put under a course of medicine by Dr. Harty and myself, and appeared to be going on very well. The last attack was on the 27th of January, at which time the child was five months old, and apparently in the most perfect health. The child's grandfather was about to proceed to a levee at the Castle; the infant appeared to be highly delighted with his dress, which was very splendid, and was brought by the nurse to see him get into his carriage. It was brought back to the drawing-room, delighted and jumping in the nurse's arms; when suddenly it stared wildly, made a violent convulsive effort, dropt its head on the nurse's bosom, and expired. Medical assistance was instantly called in, but the vital spark was entirely extinct, and every attempt at resuscitation was fruitless. On dissection, at which Dr. Harty and Dr. Marsh were present, the thymus gland was found greatly enlarged, and, from the quantity of blood which it contained, of a deep crimson colour. The ordinary size of the thymus gland in infants is known to most practitioners, and will be found very well represented in Sir A. Cooper's plates. In the natural state it is about two inches in length, an inch and a half in breadth, and a quarter of an inch in thickness. In this child it was three inches and a quarter long, nearly three inches in breadth, and fully three-fourths of an inch in thickness. I did not weigh it, but I am sure it weighed at least two ounces; and when we recollect that the ordinary weight is about half an ounce, the enlargement in this instance will appear very considerable.

The next instance in which I had an opportunity of observing this affection, was in the child of a physician in this city. This case was one of extreme interest and concern to the family, for the child's eldest brother had died of an attack of the same disease; and it is still more interesting in a practical point of view, as the detection of the disease led to the adoption of a successful plan of treatment. The following circumstances are given from a letter which I received from the child's father:—

"The eldest of my children (William), who suffered from the affection your note refers to, was a remarkably fine, healthy, placid looking child, up to five months old. About that age (in December, 1830) he was seized while asleep with what appeared to be convulsions. His face was swollen; his eyes fixed; his breath spasmodically retained; he gasped and struggled for some time, and when he at length recovered his breath he uttered several sharp cries, as if in much distress. The attacks soon became frequent, and generally occurred during sleep, when fretted, agitated, or frightened by any sudden noise or motion, or whenever his breath was from any cause obstructed, but sometimes also when smiling and playful. The fits used sometimes to last so long, that his face became nearly black from the obstruction of his breath; and one, which lasted only a little longer than the others, suddenly deprived him of life. He had been a moment before cheerful, and apparently free from all illness. He died at the age of eight months, having been ill three."

The second child was attacked for the first time in the eleventh month of his age (March, 1834), having been previously remarkably healthy. In his case the upper part of the sternum projected in a remarkable manner, as if forced outwards by the pressure of the enlarged thymus gland, which could be felt. The paroxysms were well marked, but not so severe as they had been in his brother, nor occurring at such short intervals. The treatment adopted in this case was the following:—A few leeches were applied over the situation of the enlarged gland, in order to diminish its vascularity and hypertrophy, and afterwards a small blister, which was kept open by proper dressings. The ointment of hydriodate of potash was rubbed in around the part, and medicines were administered to regulate the state of the bowels: a good but not stimulating diet, country air, and sea-bathing, were advised. Under this plan of treatment the hypertrophy of the gland was soon reduced, and the paroxysms had completely ceased at the end of a month. He is now more than three years old, remarkably healthy and stout, and the projection of the sternum has entirely disappeared. I was happy to have the assistance of Dr. William Stokes in this case.

With respect to the conditions of other organs as connected with this affection, the following circumstances have been observed on dissection: A very curious state of the heart has been detected; this organ being found quite empty, without a particle of blood or coagulum, contracted on its dimensions, and as it were puckered on itself. In the head a quantity of serous fluid has been frequently discovered, and hence such cases have been pronounced

cases of hydrocephalus, although none of the symptoms of the latter affection were observable during life. Now if we bear in mind that the position of the gland is such that when enlarged it must greatly obstruct the return of blood from the head, and reflect on the effect which this must have on the capillary origins of the veins, we can easily understand why serous effusion should be as natural a consequence as ascites from enlargement of the liver, or anasarca of the extremities from a pressure of a gravid uterus, or an enlarged ovary. Enlargement of the mesenteric glands has been very frequently found in connexion with this disease.

But a question of more importance is, how does the enlargement of the gland produce the fatal result? I think the matter admits of a satisfactory explanation. Enlargement of the thymus gland may occur in three different ways. In the first place it may be the effect of simple hypertrophy, connected with general plethora, occasioned principally by over feeding. Sanguification goes on actively, and a large quantity of blood is sent to all the glandular organs, and among the rest to the thymus, by which its substance is hypertrophied, and its vessels distended with blood, so that its cells become loaded with the fluid peculiar to them; and in this way the volume of the gland may be considerably increased. In the second place, the enlargement may be connected chiefly with the disproportion between the size of the gland and the capacity of the superior aperture of the thorax *. Lastly, the gland may be enlarged as the result of actual disease †. The same form of scrofula which is observed in other glandular organs, may also attack the thymus; and it is well known the disease in question is most apt to occur in children who have exhibited scrofulous affections of other parts.

We now come to examine another part of the subject, namely, the mode in which this enlargement may thus suddenly impede the functions of respiration, circulation, and nervous energy, and thereby destroy life, which appears to me to be thus: Supposing any cause to occur capable of producing agitation or strong mental excitement in the child, and that the gland has been previously enlarged, and capable of great distension, a number of circumstances will occur which combine in rendering that distension still greater, and increasing the size of the gland in such a manner as to affect materially the condition of the surrounding parts. Any cause producing agitation on the part of the child, excites the heart's action; the enlarged gland becomes distended and increased in size, presses on the vena innominata, and prevents the return of blood from the head. The same pressure prevents the venous blood of the thymus itself from getting into the innominata, and thus becomes a fresh source of distension. The combined result of this is great and dangerous pressure exercised on the great vessels, preventing the return of blood from the head, and thereby suddenly producing cerebral congestion; on the trachea, by which respiration is impeded; and on the important nerves in that situation, especially the sympathetic, the par vagum, and its recurrent branches, any interference with which has been proved by the experiments of Dr. Alcock, of this city, and others, most powerfully to influence the function of respiration; and Le Gallois found that in young animals the division of the recurrents was sufficient to cause almost immediate death. This latter agency, especially when exercising its influence in conjunction with the others just mentioned, it seems to me reasonable to believe must contribute to the remarkably rapid extinction of the powers of life. The affection, at least, must be different from either ordinary apoplexy or suffocation, for it happens in an instant: while you are looking at the infant, it droops its head and dies, and generally without effort or struggle of any kind. It may be also that in this case the ascending cava does not supply a sufficient quantity of stimulus to the heart, while at the same time the compression of the brain, by interrupting the nervous influence, tends to superinduce paralysis of that organ. Kopp attributes the sudden death in these cases to the pressure on the air tubes.

* While writing these observations, I was requested to examine the body of an infant, aged five months, son of an esteemed medical friend. The child was taken out of bed at seven o'clock in the morning, was fed, and again laid in its cradle, appearing to be perfectly well; but in a few minutes the attendant thought there was something unusual in the sound of its breathing, and on approaching it, it appeared to be dying, which was the fact; in a few minutes it expired without a struggle. On examination, no remarkable morbid lesion could be discovered which would satisfactorily account for its death. There was serous effusion on the surface of the brain, one hemisphere of which was more transparent and gelatinous than usual; the upper aperture of the thorax appeared to me of unusually small dimensions; the thymus was not enlarged, but it was very hard from the deposition of a firm tubercular matter in its substance, and the part of the trachea over which it lay was distinctly flattened; there was also very extensive mesenteric glandular disease, and the heart was empty and wrinkled. I am strongly impressed with the belief that in this case diminished space in the aperture of the thorax, conjoined with the indurated state of the thymus, led to the fatal event, in a manner analogous to that which would be the result of hypertrophy of the gland.

† Several instances of such diseases are detailed in Cruveilhier, Portal, Lieutaud, and others.

With respect to the treatment, it is either immediate or preventive. When a paroxysm comes on, the child should be placed in the upright position, with the head slightly inclined forwards, and in this way exposed to a full draught of fresh, cool air, while cold water is at the same time sprinkled over the face. Every means should be taken to remove as far as we can the compression from the veins and nerves, as well as to relieve the oppressed action of the respiratory system. When children are subject to fits of this kind, food should never be given by laying them on their back, and tossing the food down their throat, for this is very apt to bring on a paroxysm; and they should never be rudely awoke, or roused suddenly from sleep.

With regard to the treatment to prevent the return of the disease, we should adopt such a plan as would have the double effect of removing hypertrophy and local congestion, and improving the tone of the general system. Our curative measures must be directed, in part, locally to the situation of the enlarged gland, the reduction of which we should aim at by the application of leeches, blisters kept running, or frequently repeated, and discutients, such as ointments containing iodine; while we give internally aperients, of which those that contain mercury, especially calomel, have been found most serviceable. In some cases antispasmodics and sedatives will do good, such as musk, camphor, assafœtida: preparations of zinc, especially the cyanuret, have been extolled by some, and the cherry-laurel water, in combination with depletion, has been used with advantage. Along with such measures we should, if possible, adopt removal into the fresh air of the country, sea-bathing, and a carefully regulated system of diet, which should be good, but of a kind not likely to stimulate. In weakly debilitated children, minute quantities of sulphate of quinine, continued for some time, are productive of great benefit.

In October, 1834, I saw, in consultation with the Surgeon-General, the infant child of Mrs. L., aged seven weeks, who had had three or four paroxysms of this affection: one of them very severe, lasting so long that the nurses thought the child must have expired before it could recover its breath; and for several hours it appeared in great distress. The child was in every respect the very picture of perfect health, and all the functions proceeding with the greatest regularity; but it appeared to me that the situation of the thymus gland was fuller than it ought to be, and on this view I acted. I had a leech applied near the part, which I directed should be diligently rubbed with a discutient and slightly irritating liniment twice a day, and administered, internally, calomel combined with jalap. This plan of proceeding being approved of by the Surgeon-General, was continued, and the child had no return of the attack.

It should be mentioned, that in most cases where benefit is derived from the treatment adopted, the recovery is very rapid, being not unfrequently complete within a few weeks.

In cases of this kind much blame is attributable to the system of excessive repletion adopted or permitted by mothers, whose over anxiety for the child's welfare leads them to indulge it in the use of improper aliment. I was called some time ago to a case of this kind, and found that the mother was in the habit of giving the child wine, punch, and bottled porter. On asking her why she did so, she said it was to keep off the fits, for if the child did not get such things when placed before it, it became irritated, and a fit was generally the consequence. How easy would it have been to keep such things out of sight altogether! Very often after a paroxysm the child will remain many hours apparently in a state of great distress, starting, screaming, and clenching the hands, or twisting the thumbs into the palm, refusing to suck, or doing so ravenously, and moving the head as if in pain. Under such circumstances I have found nothing so soon or so effectually give relief as a small blister applied to the nape of the neck, a purgative of calomel, followed, perhaps, by an injection, and immersion to the hips in warm water. Sometimes I have thought it necessary to premise the application of one or two leeches to the head.

About twenty years ago, Allan Burns, who foresaw that the occasional enlargement of the thymus gland might be a cause of serious disease, proposed to dissect it out. This would be certainly a most decisive operation in the way of cure, for after its performance the infant would not be likely to be troubled with this or any other complaint. I may observe here that this disease has been noticed by some authors, though it has not received the attention it deserves. Kopp, in the year 1830, described it under the name of asthma thymicum, and were it not likely to extend the limits of this paper unnecessarily, I would cite some of his cases to shew that it is the same disease*. In one of them he observes that the mother of the child was of a strumous habit. It has been already observed that this disease is most frequently met with in scrofulous children, and in the

* See an account of the researches of Kopp and Hirsch, in a subsequent page, present number.—E.G.

children of scrofulous parents, although perhaps not exhibiting symptoms of that disease. There appears in some instances to be a family predisposition to this affection, so that several of the children take it in succession. It is scarcely necessary to observe, that all diseases affecting the function of respiration are likely to lead to this: the same may be said of the irritation of dentition, during which the condition of the child should be closely watched. Enlargement of the mesenteric glands is by some supposed to be a predisposing cause*, but I believe we only know that the two affections are very often found coexisting; and I may remark here, that it is much oftener seen in boys than in girls; in, at least, the proportion of seven or eight to one. The disease is not entirely confined to the period of infancy, for in Sir A. Cooper's work† a case is given in which the patient was 19 years of age. It has also been observed by Meckel and various modern authors. Sandifort, in his Pathology, describes an enlargement of the thyroid gland in very old persons, but does not state what the symptoms were during life.

Lieutaud‡ mentions the case of a man of 35 years of age, who had long suffered from pain in the chest, cough, violent headache, and want of sleep. The lungs and thymus were found scirrhous; and it is mentioned that "the heart was empty, and remarkably contracted on itself."

A second case§, recorded by the same author, occurred in a young man of 20 years of age, who, after inflammation within the chest, remained affected with dyspnœa, and difficulty of lying on the left side; the body became œdematous, cough very troublesome, and the respiration so much impeded as to threaten suffocation. Empyema occurred, and the patient died. On examination the thymus was found of enormous volume, and scirrhous; and the lungs were equally diseased.

In the close of the year 1831 I attended a post-mortem examination with Dr. Harty, the subject of which had died of an affection almost precisely similar to that last detailed. He was a young man of 28 years of age: the tumor occupied the situation of the thymus, and was of immense size.

Since Kopp's treatise on the Asthma Thymicum, some cases have been published by Hirsch, of Kœnigsberg, and others, all agreeing in the general characters already described. There is also a paper by Mr. Hood, of Kilmarnock, in the third volume of the Edinburgh Journal of Medical Science, p. 39 (this latter paper preceded Kopp's, having been written in 1826), detailing some highly interesting cases of this affection, with very judicious remarks thereon*.

* Mr. Burns seems to take quite an opposite view of the relation between the disease in the mesenteric glands and the enlargement of the thymus, which latter he appears to regard as the cause of the former. "By pressing on the subclavian vein it obstructs the passage of the chyle, and may thus excite disease in the mesenteric glands."—*Principles of Midwifery*, page 728, seventh edition.

† Jam cit. p. 44.

‡ Hist. Anat. Med. t. ii. p. 14, Obs. 448.

§ Op. cit. p. 118, Obs. 851.

* Dublin Journal of Medical Science, July 1836.

ON

PROFESSOR WALTHER'S MODE

OF PERFORMING

THE OPERATION OF KERATONYXIS.

To the Editor of the Medical Gazette.

Sir,

When I stated (Medical Gazette for June 18th) that Mr. Lee's account of Professor Walther's mode of performing the operation of keratonyxis, was meagre and confused, I by no means meant to imply that the writer of that account was himself convinced of the unprecision of the language with which he consented to decorate his opinions. I am pleased, however, that my letter has induced him to furnish "a more lucid (?) explanation," and should have been still further gratified if his "more lucid explanation" had been less confined and superficial. I do not, however, address you so much for the purpose of noticing his somewhat peevish reply to my former remarks (which certainly were not calculated to give offence), but with the intention of entering my protest against a mode of operating which is calculated to diminish the success of one of the most useful and interesting objects of ophthalmic surgery. Mr. Lee states, that my remarks "merely show that I have had too few opportunities of seeing keratonyxis properly performed;" or, in other words, that after having been extensively engaged in performing and witnessing operations for cataract for many years, I have not yet seen the

operation performed in the manner which he, in the absence of the special advantages I have enjoyed *, chooses to approve. To this, sir, I shall merely reply, that in determining, in so positive a manner, the superior merits of one operation over various others (which are generally recommended, and frequently successful), without, as far as I can learn, having at all frequently performed those it is intended to supersede, I will not say that Mr. Lee exhibits the dogmatism of a travelled pedant, but surely the language of an enlightened observer would have been characterized by a greater measure of moderation and caution. If Mr. Lee had perused my work with that degree of attention to which I trust it is entitled, he would have perceived, that, if my opinions on the subject of the operative means required for the cure of cataract are erroneous, I have at least adopted the usual and approved means of rendering them accurate. Surely, sir, the results derived from extensive practice, laborious observation, and considerable experience, are not to be at once superseded by the speculations of the theorist, or the positive opinions of the mere observer of other men's proceedings.

Mr. Lee remarks, "During my residence in Munich, Professor Walther had the kindness to show me several individuals, from six to eighteen months after the operation (of keratonyxis, according to the central method of operating), in whom the cornea presented not the slightest opacity or vestige of a cicatrix: there is nothing extraordinary in this, as the same thing is very often seen after accidental wounds of the cornea, and after extraction." It is not necessary to submit this statement to any close analysis, for the purpose of detecting the errors it comprises, and the want of correct and exact information it involves. I altogether deny that "very often after accidental wounds of the cornea, and after extraction, not the *slightest opacity* or *vestige of a cicatrix*" remains; but even if a certain part of this statement were correct, surely there is no comparison to be instituted, on the ground of previous condition and final result, between the extensive division of the cornea *at its margin*, and the *central punctuation* of that tunic by the agency of an instrument, which, after having transfixed the part, must be pretty freely moved in a certain direction, or in various directions, for the purpose of either depressing or comminuting (for it cannot be reclined by this method) the lens. Mr. Lee is of course aware that the iris will protrude through a very small wound in the cornea, and that, prior to this occurrence, the aqueous humour will have escaped. Now, in all accidents of this kind which I have witnessed, even though the iris may soon disengage itself from the corneal aperture, and become (which is very rare) perfectly normal in its figure, its position, and its movements, either "a slight (or extensive) opacity or vestige of a cicatrix" has almost invariably remained *. Such also is the result of those cases in which I have performed the operation of keratonyxis as it is usually practised (by puncturing the cornea nearly at its junction with the sclerotica) in infants and young children. In performing the operation of keratonyxis as I have generally accomplished it, the aqueous humour is *not* discharged, and the resulting corneal opacity is exceedingly small; but in order to secure these material advantages, it is necessary to pay great attention to the construction of the needle employed. What, then, are the principles to be kept in view in selecting a suitable needle for performing the anterior operation of solution? If its point be too delicate, it will bend and glide between the corneal laminæ. If, on the contrary, it be insufficiently fine, it will bruise the part, occasion an annoying degree of pain, and probable delay, with subsequent inaccuracy of manipulation. Again, if it be perfectly round, it will pierce the cornea with comparative difficulty, and inflict a needless measure of injury upon its texture; and, if too flat, with its sides very sharp, it will be improperly flexible for the required purpose, whilst

* I allude more particularly to my official connexion with a public institution.

* It will be borne in mind that an accidental penetrating wound of the cornea generally leaves behind a good deal of opacity, on account of the contusion and violence so generally associated with the injury; and that the incision of the cornea *nearly at its margin*, in cases of extraction, is usually made at that period of life when the presence of the arcus senilis renders the union of the divided part less distinct than it otherwise would be. I apprehend these facts do not in any way support Mr. Lee's statement.

there will be a risk of dividing the cornea irregularly, and to an unnecessary extent—unless, indeed, the speculum be used, (which I conceive to be improper) or the eye be kept by the patient unusually steady. Further, if the needle increase from its point to any great extent, it will become so fixed in the corneal texture as to be moved only with a difficulty which will much impair the precision of manipulation; and, on the other hand, if the needle be broader and longer a little above its point than it is a degree nearer to its handle, the aqueous humor will escape, the lens will be dislocated, and will press the iris against the cornea, and, if hard, will become absorbed only very slowly, and will *certainly* occasion a good deal, and *probably* a destructive extent, of inflammation. It will be remembered that ulcers at the centre of the cornea heal with greater difficulty, and produce more pain, than when placed less centrally, and that they more generally occasion dense opacity and staphyloma when so situated.

In performing various operations upon the eyes of dogs and rabbits some time ago,* I ascertained experimentally the occurrence of effects which supply me with the best arguments I can employ against the mode of operating for cataract it is one object of this paper to condemn. I was able to divide the lens *in situ*, without displacing it, by transfixing the centre of the cornea with a properly constructed cataract needle; but to do this required an extent of movement on the part of the needle which was very detrimental to the corneal texture.

In performing the operation of depression I considered this method (the central puncturation of the cornea) to be objectionable in consequence of the *direct* (not even *slightly* inclined) manner in which the depression was necessarily effected,—a circumstance open to two objections, namely, the great liability of the lens to reascend, and the probable occurrence of amaurosis from the pressure of its margin upon the retina. Another important objection which was forced upon my attention was derived from the degree of inflammation, the liability to ulceration, fistula, staphyloma, and extensive opacity of the cornea, which followed the use of the needle in a sufficiently free manner to render the proposed effects upon the lens tolerably complete and efficient.

It will be perceived that I have not given a detailed account of the objections which exist to the method of operating practised by the distinguished Walther; but I may be permitted to say that they are very numerous, and equally manifest. As to the argument founded on the bare successful result of many cases in which his method of operating has been employed, it is in its present shape altogether too loose and indefinite to merit much attention. The mode in which extraction is now performed furnishes the most agreeable results. In private practice I have never met with a total failure. The nearest approaches to a complete failure occurred in the cases of Mr. Stevens and Mr. Lee, referred to in the second volume of my Treatise. But on this subject I will quote an authority not likely to be objected to:—“I only expect,” says Mr. Guthrie, “a total failure as a matter of accident; rather as an untoward circumstance that may occur, than as one which is likely to occur*.

I am, sir,
Your very obedient servant,
RICHARD MIDDLEMORE.

Birmingham, August 20, 1836.

* The results of some of these experiments were published in the MEDICAL GAZETTE, vol. x. p. 344.

* On the Certainty with which an Operation for the Extraction of Cataract may be performed. London, 1834. Page 7.

ACCOUNT OF EIGHT MEN

Who were shut up in a Coal Mine for 136 hours.

BY DR. JOSEPH SOVICHE.

ON the 2d of February last, the colliery of Monzil was inundated while the miners were at work: those who were enabled to reach the mouth of the pit were saved; almost all the others perished. Eight men, however, contrived to take refuge in a gallery which the waters had not entered, and were there incarcerated for nearly six days. The length of the gallery was about 100 metres, its breadth about $2\frac{1}{2}$ metres, and its height $1\frac{1}{2}$. Thus the total

volume of space in which they were inclosed was 375 cubic metres. Now, supposing the air in that space ordinary atmospheric air, not capable of being renewed, it is clear that, according to the calculations of certain authors, these unfortunate men could not survive for above sixty-two hours. But it was after the expiration of 136 hours that they were liberated: they were then, however, on the point of death by asphyxia: all the respirable air was exhausted, and, in fact, for some hours before assistance could reach them, their breathing was painful, stertorous, and they could not speak a word. Pains in the head, and excessive weakness of the limbs, with stupor, and in some instances delirium, were amongst the symptoms which they experienced; from all which we may infer that a fatal termination of their sufferings was close at hand.

It was commonly thought that these eight men, having had no food for above five days, must have endured the most frightful torture of famine by the time they were liberated. But it does not appear that their long abstinence was attended with much inconvenience: none of them felt pains or spasms of the stomach. The explanation of this fact is, perhaps, not difficult. In the damp and vitiated air by which they were surrounded, their organs lost their wonted energy; the heart sent the blood sluggishly to the extremities; transpiration ceased to be carried on; and there was probably little or no waste of substance. The functions of life thus proceeding with less activity, assimilation could not but be less needed; the stomach consequently must have been less irritable than it would have otherwise been. One of the party, however, had eaten part of his shirt, another had gnawed his leather braces, and a third tried to swallow the wick of his lamp. But upon being questioned on the subject, the men said that they had done these things by way of precaution, and to preserve their strength.

On the first day, they shared among them scrupulously half a pound of bread, a piece of cheese, and two glasses of wine, which Antoine Dumas had taken with him into the mine, and now had the admirable generosity not to keep to himself: two others of the party, Claude Ferreol and Pierre Beraud, having breakfasted before they entered the mine, refused their portions, saying that they ought not to die later than their companions.

With regard to thirst, which is known to be still more importunate than hunger, no suffering was experienced from that source. They had water at their command which was not impure; but it is remarkable that they did not require drink till the fourth day of their imprisonment. Dumas felt no inconvenience of this kind.

It was the cold and want of light that constituted their chief discomfort. Upon their liberation, they told us that they could scarcely express how much they had suffered from being plunged so long in utter darkness. They thought that if they only had their lamps alight, they could with their implements have worked so as to meet their liberators in the direction in which they heard the sounds from without. One of their first wants was light, when the piercer entered the gallery in which they were confined; and fire they called for above all things. The cold they endured was intense. The water was oozing in about them on all sides, and their clothes were completely drenched. From the circumstance of their being without food, and breathing an atmosphere which was every moment becoming more and more impure, there was of course a great deficiency of vital re-action; the circulating system lost its energy; the extremities and integuments received a quantity of blood which could not be propelled; and their sufferings in consequence were extreme. Their only resource in this miserable condition was to press and lie upon one another by turns, which procured them some relief. Claude Ferreol, who was beyond question the stoutest and boldest man among them, was at one moment so overwhelmed with the sensation of cold, that he cried to his companions to lie upon him, or he should die. Dumas, who had already shared his pittance of provisions with his comrades, had now the generosity to give his waistcoat to one of the party who was almost naked, and accordingly suffered from cold more than the rest.

By turns they slept, but sleep had no restorative effect upon them: it was short, and disturbed by the most distressing sensations.

A horrible stench, which they compared to that of putrid meat, exhaled from their mouths; and they were at last obliged to keep apart from each other on this account.

But their moral force and energy served greatly to sustain them. They uttered no complaints: they struggled with despair. Ferreol for a moment thought he might possibly save himself by plunging into the inundated galleries, but his comrades prevented him: he might as well die where he was, they said, as in the water. He yielded to their remonstrance, and determined to abide the worst along with them. They prayed to God in their misery, and one of them, the oldest, was requested to pray aloud. It was while they were thus engaged at one moment that their three lamps suddenly went out. "Alas," said they, "we shall soon all of us be extinguished like our lamps!" They struck with their hammers from time to time, in order, if possible, to give notice of their position to their friends without, who might be in search of them. Nothing but silence prevailed after the first two hours, when they distinctly heard the knockings made in an adjoining gallery by their brother miners, who afterwards perished.

During thirty-four hours, there was no hope to mitigate the horrors of their situation. Sagnol (one of them), who was commissioned to watch whether the waters were likely to retire, tried to deceive his comrades on this point, but they went together, from time to time, to see if his information was correct, and found that there was no sinking of the waters: they now gave themselves up for lost.

But all of a sudden they heard a knocking from without, which restored their courage. It was the signal of those who were coming to relieve them. The sound, however, proceeded from a great distance; they were full fifty metres below the surface of the earth. Thrice was a false direction taken by the succouring party; but the fourth attempt gave the prisoners great joy, and enabled them to support their drooping powers.

The methods of relief adopted by the medical men in attendance were well devised. The moment the first piercer entered the gallery, Dr. Robin and myself let down a tube of white metal, which had been prepared: it contained about two glasses of *bouillon.* As we feared that mischief might be done by scrambling, among the party, and that their voracity might get the better of their prudence, we gave them warning that whoever should take more than a single mouthful of the liquid at a time would surely die. But their forbearance was admirable: Farreol held the tube, but would not receive his portion till the last. In the course of a quarter of an hour I let down a second tube, with similar precaution. Afterwards, every half hour the same practice was followed; and Dr. Robin contrived to let them have a bottle of *eau de Cologne*, which revived them very much, used in the way of lotion or aspersion.

We were informed by Ferreol that three of his companions were almost exhausted: these were Teyssot, the oldest of the party, aged 47, and the two youngest, aged 21 and 22. The latter two were those who had attempted to devour their shirt and braces. But the *bouillon* and *eau de Cologne* gave them great relief.

When, at length, after 136 hours, they were extricated from the mine, their breathing was short, skin cold, and pulse very delicate. Aromatic waters, ether, even ammonia, were first presented to them. Not a moment was lost; we wrapped them in warm clothes, and put woollen night-caps on their heads. They soon began to be restored, and all were able in a short time, with the exception of Teyssot already mentioned, to walk with the assistance of supporters. Teyssot had to be extricated from the gallery with great trouble and caution.

On reaching the governor's house, they were put into warm beds, and a medical man was appointed to the care of each. Aromatic and vinous infusions were administered, as well as a little more bouillon. Some minutes elapsed before the ordinary moisture of the skin could be restored.

I had the special care of the three who were labouring under symptoms of disease. But, one alone excepted, namely, Beraud, the man who had gnawed his braces, they were not very seriously ill. Want of sleep chiefly harassed Beraud. Besides being the youngest of the party, and perhaps the hungriest, he had been indulged with

too much *bouillon:* he was feverish and afflicted with headache, partially attended with delirium. He suffered from cramps in the legs and feet; his lips and throat were dry and parched; his thirst was extreme. I applied mustard poultices to his legs, put hot linen about his body, ordered him a lavement, directed an emollient cataplasm to be laid on the belly, and allowed him a linen compress, steeped in acidulated water, to keep in his mouth. This last he sucked with such eagerness, that it seemed as if he was about to devour it. In the course of two hours a great improvement was observed; the patient slept, and was no longer an object of disquietude.

It was night when they left the mine; and now at six in the morning, when they awoke, it was with inexpressible pleasure that they saw the daylight. By degrees they were treated with more substantial nourishment than had as yet been ventured upon; but it was with great difficulty they could be dissuaded from asking for *lard*, or the fat of pork, food they commonly indulged in on holidays.

They were all transferred after a short time to the Hôtel Dieu de St. Etienne, for at the Governor's house they could not be well prevented from various irregularities: their wives and children, too, with numerous friends and relations, including the curious, were constantly flocking round them. At the Hôtel Dieu I saw them frequently, and my friend, M. Desjoyaux, having kindly communicated to me his notes, I am enabled to add a few more remarks.

Beraud still continued to suffer seriously; but chiefly by antiphlogistic treatment, with leeches applied behind the ears, &c. he eventually recovered. Brun, aged 22, laboured under an intense *gastro-enterite*, which seemed to have been occasioned in a great measure by the ingestion of his shirt, charged with coal-dust. Leeches to the epigastrium, and other appropriate therapeutic remedies, were employed, and he got well. Four others were chiefly affected with cough and catarrh.

Antoine Dumas, whose habit of body was as sound as his disposition was generous, had no particular ailment. Ferreol contracted a violent acute bronchitis, which, however, yielded to appropriate treatment.

There was one affection from which all the party suffered more or less,—engorgement of the lower extremities, which continued for several days. This arose evidently from the debility which affected all their organs, and especially the skin, in consequence of the severe cold, humidity, and want of sleep, endured for so many consecutive days.

Four of these poor sufferers have given up their mining occupations, having procured other employment attended with less danger; but the other four, including Dumas and Ferreol, have resumed their accustomed labour in the colliery of Monzil*.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

The Practical Anatomy and Elementary Physiology of the Nervous System; designed for the use of Students in the Dissecting-Room. By F. LE GROS CLARK, demonstrator of Anatomy in St. Thomas's Hospital.

WE think this is a book calculated to be highly useful to the anatomical student. It is drawn up in a manner very superior to what we commonly meet with in manuals for the dissecting room; and the plan of combining physiological information with the anatomical detail, is likely to be very beneficial. The arrangement is simple and clear: the brain and spinal marrow are first demonstrated; then follows a section of about equal length, on the physiology of the nervous system; and then successively the cerebral nerves, the spino-sacral nerves, and the sympathetic system, are described.

The following is a specimen of the succinct manner in which the author treats his subjects: he is noticing the functions of the cerebellum.

"No mention has been made in the preceding pages respecting the probable part the cerebellum plays in the various phenomena alluded to: the reason for

* From the "Annales d'Hygiène publique et de Médecine légale;" July 1836: just published.

such intentional omission is, that the opinions entertained upon the subject are of a more conjectural character, and less clearly substantiated by the unequivocal testimony which the unvarying results of experiments bear, than the connexion between other portions of the encephalon and the functions ascribed to them, have admitted of. We do not allude to the improbable hypothesis that the cerebellum is the seat, principally, of the *sexual* passion; pathology, at the least, rarely fails to prove that there is no necessary connexion between an excited condition of the organs of generation and this division of the encephalon: but reference is made to the control which it exercises over certain functions which emanate from the cerebrum.

"Experiment leaves little room to doubt that the cerebellum is in no way connected with sensation; nor does its destruction (other parts being preserved entire) annihilate, or indeed, as far as we may judge, interfere with the power of willing an action. There is still, however, some agent required to superintend and *combine* the different muscular exertions, the co-operation of which is essential to the production of any given effect, such as an act of locomotion: this property appears to be lost on removal of the cerebellum, and the connexion between the agent and the effect is thus supposed to be established. We will, however, give the inferences which Flourens deduced from his experiments, in his own words; recommending to the student, in the meantime, a careful perusal of this part and the rest of his interesting work on the functions of the nervous system.

"After describing how removal of the cerebral lobes annihilates all voluntary power, this author proceeds thus:—'An animal deprived of his cerebellum, loses all equilibrium, all *coordination*, all reciprocal relation [*corrélation*] in his movements. Nevertheless all the parts of such an animal, the head, the trunk, the extremities, all the parts, I say, move—and move with vigour; but since there is no longer any concurrence, any disposition, or *mutual understanding*, if one may venture so to express it, there is no result obtained. Such an animal as this no longer walks, no longer flies, no longer preserves the standing posture; not that he has lost the use of his feet or his wings, but because the combining and directing principle of his legs and his wings no longer exists. In a word, all the partial [or individual] movements are continued; the combination [*coordination*] alone, of these movements, is lost.'"

What follows regarding the muscular structure of the eye and ear, and the analogy between the functions of those organs, may also be extracted.

"It remains for us here to notice certain phenomena connected with the muscular structures of the eye and ear; to point out the striking analogy between them; and to show how the mode by which their action is influenced differs from that of the systems already described in the foregoing pages.

"1. The analogy alluded to between the two organs consists in the following points:—*a.* each organ is supplied by a nerve of specific sensation;—*b.* there is a muscular structure connected with each organ, the use of which is to modify by its action the effects of external impressions;—*c.* this muscular structure is in each case supplied by filaments emanating from a ganglion;—*d.* the action of this muscular structure in each organ is involuntary under ordinary circumstances; and the mode in which it is stimulated in either instance is through the medium of an *appropriate reflected impression*;—*e.* that some portion of the encephalon, not necessarily the sensorium, is the centre of reflexion. The muscular structures alluded to are, in the eye, the iris; in the ear, the muscles of the malleus and stapes, which act mediately on the membrana tympani. The appropriate impressions are, in the one instance the vibration of the atmospheric air, in the other, the undulation of a more attenuated medium; producing on the sensorium the phenomena we term 'sound' and 'light.'

"2. The peculiarities which distinguish the muscles under consideration, are—*a.* that the excitor nerve is also a nerve of specific sensation, *i. e.* that the filaments must be mixed;—*b.* that the motor filaments are derived from ganglia

"These are the facts connected with these curious points. We do not venture to draw any conclusions, but merely indicate, particularly with respect to the ear, the difficulty of tracing the channel (if our surmise be correct) by which

the impression could be reflected upon the nerves supplying the muscles*."

There are a number of references interspersed through the volume, which must prove advantageous to the student in guiding him in his further inquiries.

MEDICAL GAZETTE.

Saturday, August 27, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

THE PROVINCIAL ASSOCIATION AND THE POOR-LAW.

THE expected Report of the Committee appointed last year to consider the relations existing between the Poor-Law and the profession, has just been published. It is a document of considerable length,—which we fear will not contribute much to its popularity. The profession generally required something concise, explicit, and decided; but the production before us is more apologetical than we could wish—more smooth and civil than, perhaps, its authors will get much credit for.

If there be any measure which, in its origin and progress suspicious, and in its results execrable, has contrived to unite all parties, even the most opposed, in one feeling of detestation against it, that measure is what has been called the *amended* Poor-Law Act. Yet of that act, in favour of which even its warmest supporters (for there is no measure so bad that will not have some interested supporters) can no longer urge any argument, save that it is *economical*, or, as might with more truth be stated, that it is "penny wise and pound foolish," the Reporters have thought fit to speak in these courteous terms:—

"The Poor Law is, by the great majority of all parties, believed to be a wise, a beneficial, and a successful measure (!). The results, as to *economy*, are already sufficiently apparent; and the whole landed interest of the country is experiencing a considerable reduction of its burdens. Any interference with the details of this measure would be regarded with suspicion and dislike. The opposition of the medical men is liable to the imputation of factious and interested motives; and the power which the parochial authorities now possess over the profession will not be readily yielded."

How such an ill-timed laudation as this should have crept into the Report, it is difficult to conceive: the passage, we are disposed to think, must have been written some two years since at least, and has slipt into its present place by some oversight: certainly it is wholly inconsistent with the many disgraceful disclosures of the true principles and real working of the Act which have been made of late. If it was admitted through an affected courtesy, or with the design of conciliating any one, it was a foolish proceeding: the party that feels no shame in supporting such a measure as the present Poor Law, is not to be caught with that bait; and any concession made with such a view will assuredly be only attributed to weakness on the part of the conceders.

In most other respects there is much to commend in the Report, and much that every practitioner throughout the country should be acquainted with. The various questions arising out of the anomalous condition in which the profession finds itself placed with reference to the Poor-Law authorities, are lucidly stated and ably discussed by the Committee. Some of their remarks we may

* The hypothesis respecting the function of the cerebellum, mentioned in the last page, has received support from the recent dissections of Mr. Solly, who has shown that some of the fibres which compose the *anterior* columns of the spinal marrow may be traced up into the medullary structure of the cerebellum.

quote, for the benefit of readers who have not an opportunity of seeing the original.

Certain observations are made in the preliminary pages on the principles which should guide all parties concerned in providing medical relief for paupers. *Who* are bound, in the first place, to provide such relief? Medical men, it is shown, are obliged, as well as other members of the community, who are in competent circumstances, to contribute to that object. They bear their burden as individuals; they pay their portion of the poor rates as well as other people: then why should it be sought to impose upon them, in addition to those which they already bear, burdens that should be shared equally by the rest of their fellow citizens?

The reporters then endeavour to define *who* are to be accounted *paupers* with reference to medical relief? Also, what should be the kind of medical attendance provided for paupers? And next, who should decide on those ailments which demand immediate relief? The folly and mischief of committing to the poor-law officers the sole discretion on this last head, is very properly censured. "No one can defend," say the reporters, "a regulation which entrusts this delicate and important decision to a subordinate, and a necessarily ignorant, functionary."

"If the medical attendants of the poor are selected not only from a confidence in their professional abilities, but from a conviction of their integrity, they ought to be freely entrusted with a discretionary power, which they alone are able to exercise. And after all, in this matter, the authorities *must* rely on the *honour* of their medical officer."

The proceedings of some of the Assistant Commissioners, in encouraging *clubs*, are properly exposed.

"Within the last few months," say the reporters, "a new mode of parochial remuneration has been adopted. Your Committee allude to the formation of a species of 'Medical Clubs,' which is intended to provide medical relief for two classes of the poor: the independent labourer and the pauper. The Assistant Commissioners in Essex, Gloucestershire, &c. have proposed 'Clubs' of this kind. The following is an edict of the Epping Board of Guardians, confirmed by the Assistant Commissioner, and may be considered a fair specimen of the plan:—'The remuneration to the medical officers shall be by annual subscriptions of the Guardians, and of such of the independent labouring poor as may be desirous of availing themselves of the proposed arrangement within the prescribed period, according to the following rates:—

	s.	*d.*
For an individual maintaining himself or herself	2	6
For a wife whose husband is a member of some benefit society	2	0
For a man and his wife......	4	0
For each child in a family (if one be subscribed for, all must)	0	6
For every person in the same family	2	0
Cases of midwifery..........	10	0

The Guardians are to have the privilege of adding to the pauper schedule any name they may think proper, during the contract, paying only at the same rate as for those originally included.'"

We are glad to find that the Committee do not, as is too often done, confound provident Self-supporting Associations with those "Clubs."

"In any remarks which your Committee may make on this plan, they will probably escape all suspicion of opposition to a well-regulated system of mutual insurance among the labouring classes, for defraying the expenses of illness. Such a system will be found, on slight inspection, to be totally different from the recently established 'Medical Clubs.' One of the principal evils of the latter, is the associating paupers in the same club (and subject to the same regulations) with the independent labourers, who ought to be perfectly exempt from

the control of Boards of Guardians, and from any contact with pauperism."

The frauds of some of the new functionaries are properly exposed. For example—

"A striking injustice inflicted on a medical officer by a club of this kind, is the privilege which the Guardians retain, of adding, at their pleasure, any sick paupers to the 'schedule,' on the same terms as are paid by the other contractors (*well and sick together*). 'For instance, in the parish of Chigwell, the pauper population is estimated at four hundred, *i. e.* those who when ill would receive parochial relief. Out of this number, only *one hundred* are contracted for, as receiving weekly allowance from the parish; so that on any of the others requiring medical aid, they are immediately placed on the 'schedule,' thus rendering the parish surgeon liable to attend *all*, without *all* being *contracted for.*'"

Another extract we must find room for, as it shows in a concise form the scandalous jobbing, under the pretence of economy, which is carried on by the so-called guardians of the poor.

"The diminution in the number of medical attendants on the poor is one of the principal features in the present system. It may be said, that as there are fewer paupers to be attended, it is reasonable that fewer medical men should be employed. This argument might apply with some force, if the paupers were more closely congregated, but the case is very different. The paupers inhabit the same extent of country as before, and therefore, in rural districts, the labour of the attendant is scarcely at all diminished, on account of the diminution in the number of his patients, while, for other reasons hereafter to be mentioned, his trouble is much increased.

"Your Committee are in possession of numerous facts bearing on this point.

"In the Cookham and Bray unions, *two* medical men were appointed under the new system, in place of *seven* who previously attended—In the Newbury union, consisting of *eighteen* parishes, *one* individual undertook the duties formerly performed by *twelve*: he had no assistant, and had a space to ride over measuring sixteen miles by ten.—In the Bampton district of the Witney union, *ten* miles in diameter, *eight* medical men were formerly employed, now only *one*.—In one of the districts of the Aylesbury union, the surgeon resides at a distance of *seven* miles from one part of the district, where medical assistance might be obtained within *two* miles.—In another district of the same union, the nearest point to the surgeon's residence is *seven* miles, and the most remote *twelve*. Under the old system, *sixteen* medical men were employed for the parishes of this union, containing forty parishes and four districts; under the new system, *three* medical men only, one of whom was likewise appointed to an extensive district in another union.—In the Wheatenhurst union, comprehending *fourteen* parishes, and necessarily much travelling, the Commissioners induced the Guardians to waive a contract with the established practitioners, and to engage *one* young man from the schools, who had neither a horse nor instruments.—In the Feversham union, including twenty-five parishes, only *one* medical man was employed. Numerous cases of a similar kind could be adduced."

We find that our space will not allow us to proceed further with our intended analysis. At another opportunity we shall resume the subject. Meantime we recommend to the profession at large the perusal of the document itself, as a valuable body of facts, which we have every reason to consider as perfectly authentic.

APPOINTMENTS AT KING'S COLLEGE.

The resignation of Mr. Mayo was held good by the Council; and thus the Surgical chair in King's College became vacant last week. As candidates had been so recently invited, when Professer Green retired, it was not deemed necessary to repeat this step, which must, besides, have unavoidably led to a delay which could not fail, at the present advanced period of the season,

to be very injurious to the interests of the establishment. Under these circumstances, the vacancies were at once filled up by the appointment of Mr. Arnott, of the Middlesex Hospital, to the chair of Surgery, while the Anatomy has been divided between Mr. Partridge and Dr. Todd, the former of whom is now Professor of Descriptive and Surgical Anatomy, and the latter of General Anatomy and Physiology.

ACCURACY OF THE DAILY PRESS RESPECTING MEDICAL AFFAIRS.

We are frequently astonished at the blundering announcements which often appear in the newspapers regarding the medical profession. The following is rather an amusing illustration, taken from the *Morning Post* of Thursday:—

"Sir Charles Bell, the eminent surgeon, who for a number of years was *principal surgeon* to Middlesex Hospital, has vacated that situation, and is appointed *President of the Royal University of Surgeons at Edinburgh.* Sir Charles is *succeeded* by Herbert Mayo, Esq."—(*Morning Post*, August 25th.)

Now it happens that there is no such office as that of "Principal Surgeon" to Middlesex Hospital,—that Sir Charles Bell has not been elected "President" of any thing whatever,—that there is no such institution in Edinburgh, or elsewhere, as a "Royal University of Surgeons,"—and, lastly, that Mr. Mayo has not *succeeded* to any appointment held by Sir Charles Bell!

TAXES ON MEDICINAL SUBSTANCES.

Among the articles to be taxed, according to the new scale of "Duties of Customs," we find the following:— Aristolochia, the lb. 1*d*. Cassia Fistula, the lb. 1*d*. Castor oil, 1*s*. 3*d*. the cwt. Morphia and its salts, the lb. 16*s*. Opium, the lb. 1*s*. Sulphate of Quinine, the oz. 6*d*. Sabadilla seeds, the cwt. 4*s*. Wax, 10*s*. the cwt. Mineral water, the gallon, 1*d*., and for drugs generally not otherwise specified, 2*s*. the cwt.

With respect to sulphate of quinine, we entirely agree with Mr. Pereira in an observation made in one of his recent lectures, that the Chancellor of the Exchequer would have acted more wisely had he allowed a drawback on the spirits employed in preparing that article. The price of spirits in this country being about four times what it is in France, we are necessarily driven out of the market as manufacturers of sulphate of quinine. Still, however, as there has been no tax on this substance hitherto, it is something to recognize the principle that a protection was needed, although the amount of the protective duty (6*d*. an oz. on an article so expensive) is almost ridiculous.

We understand that an *ad valorem* duty is levied on other articles often imported by chemists, and not coming under the general appellation of drugs. In an instance which lately occurred, this had nearly occasioned a serious hardship. Baron Humboldt sent a few ounces of potassium and sodium from Berlin by way of present to a distinguished chemical philosopher in London, but it was stopped at the Custom-house; and a chemist in the city having been consulted, and stating that the articles were worth 6*d*. a grain, a duty of above 40*l*. was immediately demanded. An application, however, to Lord Melbourne, set the matter right.

MEMOIR ON THYMIC ASTHMA.

Compiled chiefly from the Papers of

Drs. Kopp and Hirsch,
Of Kœnigsberg.

The Germans describe under the name thymic asthma, or Kopp's asthma, an affection peculiar to childhood, characterized by fits of suffocation, during which respiration appears suspended, and which return periodically, especially on awaking or attempting to swallow, or when the child utters cries. The cause, as the name indicates, consists in too great a development of the thymus gland.

The first observations made by Dr. Kopp regarding this disease, were in three consecutive cases; the patients were the seventh, eighth, and ninth children of a delicate mother, who had previously borne six healthy children. The three patients alluded to died at the respective periods of seven months, ten months, and twenty-one weeks. The symptoms, equally characteristic in all of them, were suffocation,

swelling of the face, spasmodic motions of the hands and feet, and thrusting out of the tongue between the teeth. The paroxysms became from day to day more aggravated, and particularly when awakened from sleep, the little patient uttered a very peculiar plaintive cry; during the fit, the pulse was irregular and intermittent. In one of the cases the sound of the heart was inaudible.

The most prominent feature in the post-mortem examinations was the appearance of the thymus gland; in one case it might have been mistaken for the lung, it was so thick and hypertrophied: it extended from the thyroid gland to the diaphragm, was two inches wide, weighing more than an ounce, and pressing strongly against the trachea; on cutting into it, there flowed from out its whole tissue a quantity of milky fluid. In another post-mortem the thymus was found occupying the whole anterior part of the chest, and forming with the superior part of the thorax, adhesions that could be removed only by the scalpel: it was united to the thyroid gland by thick cellular tissue. By the thymus covering the whole heart, the sounds of that organ had been intercepted during life. The lobes of the gland were elevated and enlarged; its parenchyma presented no trace either of suppuration or tubercles, or any other degeneration; on pressure being applied, there came away an abundant milky humour, like the spermatic liquor in consistence. The lungs were dark red, engorged with blood, as in asphyxia.

In the history of these three observations we find as constant phenomena: 1st, A suspension of respiration coming on periodically, accompanied by an acute and plaintive cry, and with signs of anxiety. 2d, The return of these fits of asthma, particularly at the moment of waking, or when the little patients uttered cries, or made attempts at deglutition. 3d, The habitual position of the tongue, which was stretched out between the lips. 4th, On examination after death, the excessive development of the thymus gland.

Dr. Kopp states that this disease occurs more frequently than has been supposed: he considers that it has often been confounded with the asphyxia, or asthma, described by Millar. In many children it is observed, when they cry, that the respiration is suspended sometimes so long as to cause suffocation; a phenomenon which usually persists to the age of four or five years, and which the author attributes, for the most part, to hypertrophy of the thymus.

In Rust's Magazine for 1825, there is an observation by Professor Eck, under the title of "Millar's asthma," which Dr. Kopp looks on as a description of the disease in question. In fact, the progress was the same, the characters identical, the same apyrexia, paroxysms alternately strong and weak, with intervals when the patient was completely free from them; death occurring during a fit, and, in fine, the lungs encroached on by an enlarged thymus gland. The same journal (1826) gives another observation by Dr. De Velsen, of Clives, in which the symptoms and post-mortem results were all similar to our detail.

Dr. Kopp relates five observations on thymic asthma, from Drs. Rullman, of Weisbaden, Tritschler, of Kannstadt, and Ulrich, of Coblentz. The French reviewer of the work considers that two of these latter observations do not properly belong to thymic asthma: for in one, the subject died sixty hours after birth, and in the other the subject was three years old when the disease set in, and consisted in a cartilaginous alteration, or rather hypertrophy of the thymus gland. In the three other cases the disease occurred in male children, a circumstance to which we shall return. The subjects of two of Dr. Rullmann's observations were brothers. In one the disease set in when the child was about three weeks old—the fits and other symptoms were identical with those already described; at the end of twenty-one months after the disease had manifested in its progress various remissions and exacerbations, the child was one day stooping to pick up something, when he was suddenly seized with vertigo, throwing himself back into his father's arms: his face became blue, the extremities stiffened, a general paleness covered the whole body, the fæces and urine passed involuntarily, and the patient died suffocated.

On examination after death, the thymus was found reaching from the superior edge of the sternum to the diaphragm, not only covering the windpipe and pericardium, but also the whole anterior part of the lungs; it was rather firm, and somewhat granular in appearance, and was of a pale red colour; there was no pus, no inflammation, nor hardness, and there did not exude any of that milky liquor as observed in the former cases.

In another case, the attacks set in at the third month, occurring mostly at the moment of awaking, returning only every six or eight days, and lasting but about three minutes. Towards the sixth month, the period of dentition, the attacks became aggravated, but on the appearance of the teeth they became milder, but soon after returned with increased violence. In this case it was observed that the tongue did not protrude. M. Rullmann had treated

these cases at first by antispasmodics and derivatives, but when he became more certain of the true pathological condition in this disease, he considered the following treatment more rational: — Plummer's powder, with cicuta, and a small blister to the sternum; low diet, with residence in the country, and removal of all causes of uneasiness that might provoke the child to cry. Calomel purgatives, occasionally administered, were always of singular service. On pursuing this treatment for two months, the fits became less frequent, and at the end of the second year the cure was complete. At the age of four years the boy had hooping-cough, without being attended by any recurrence of the fits.

Dr. Tritschler's patient was aged seven months, when he was first attacked with the former described symptoms, the fits returning during a period of six weeks, every time the boy was laid on his back. The treatment at first consisted of antispasmodics and derivatives, without benefit; at a later period, calomel and digitalis were administered, and under the influence of these medicines the fits became less and less frequent, and at length ceased entirely at the end of nine days.

Though the symptoms in this last case were identical with those observed in the cases of which the post mortem examinations have been detailed, it is yet hard to conceive how so great a diminution of volume of the thymus as is inferred could have taken place in the short space of nine days.

In the work of Dr. Kopp, besides the facts so highly deserving of attention, we find an analysis of all the works that have appeared on the organic affections and changes of the thymus gland. After Kopp come Caspari and Pagenstecher, who do not consider the hypertrophy of the thymus as a cause of asthma; Conradi, Schneider, Brück, Pitschaft, Wanderlich, Brunn, Kornmaul, Haugsted, Becker, and of late Dr. Hirsch, of Königsberg, whose excellent little work we shall now analyse.

In the first case that presented itself to Dr. Hirsch, he was not acquainted with the result of Kopp's researches, and consequently the true character of the disease escaped notice. The subject was a little girl, of apparently a good constitution. When five months old it was observed that the respiration appeared wholly suspended at the moment of awaking, like a person suddenly deprived of air; this state lasted only a few minutes, when the child resumed all her gaiety. She continued in this way occasionally until ten months old, when, having the hooping cough, she awoke one morning with a slight cough. Her mother ran to the bed, but the child had expired without convulsion or any agony. There was no autopsy.

The two next cases he met with were in children of from five to ten months. The two first died asphyxiated, one after eight months' illness, the other after three; in the latter the usual symptoms were complicated with epileptic phenomena. The thymus of the first of these children occupied all the anterior mediastinum, and was composed of two large lobes, besides several small ones. An appendix of the gland arose about its middle, and surrounded the common jugular vein: the glandular parenchyma was firm, and it weighed nine drachms and a half.

The thymus of the second child was not so thick, nor of so close a texture; it extended from the thyroid gland, beyond the pericardium, which it covered; it had contracted adhesions with the arteria innominata and right carotid, and its weight was six drachms six grains.

In the two following cases the termination was favourable.

C. N. was weaned at nine months, and, soon after an attack of bronchitis, fits of dyspnœa set in, which soon became alarmingly aggravated, and returned every hour; they were announced by a small sharp cry, or by a train of short feeble bleating *expirations*; these were followed by six or eight strong sibilant *inspirations*, similar to those observed in croup. The child threw himself backwards and became pale; the paroxysm lasted about one minute; he then remained quiet and cast down for some moments, and then resumed his habitual good humour. M. Hirsch applied leeches and a blister, and gave a purgative of calomel and rhubarb, which was vomited. He afterwards gave the aqua lauro cerasi, three drops three times a day, increasing the dose one drop every two days; the sixteenth of a grain of musk three times a day, and every morning a small quantity of the watery tincture of rhubarb: these medicines, together with inhaling pure and temperate air, produced such an improvement, that at the end of three weeks the attacks were reduced to one in twenty-four hours, and even that was by no means violent. The following month dentition threatened a recurrence of the attacks, but the predisposition was successfully combated by leeches, purgatives, and frictions of tartar emetic ointment. The child did well afterwards.

R. M. at the age of ten months, after having been weaned, began to be affected with asthma; the respiration was suspended three or four times a day, whenever he played or cried, but never on awaking. Three weeks after there came on an aggravated attack, which left no further doubt of the existence of thymic asth-

ma. The child had a few minutes before the attack been amusing himself in play, when suddenly he fell backwards, the face became livid, foam burst from the mouth, the hands became clenched, the limbs convulsively agitated, respiration suspended. Some minutes after the child rallied, fell asleep, and on awaking there was a repetition of the symptoms. Recourse was then had to leeches applied to the sternum, and a tartar emetic plaster to the chest. Calomel and rhubarb were also administered. This treatment was followed for a month, at the end of which time the spasms diminished, and the suspension of respiration, which used to occur four times a day, returned but twice a day, and at length ceased entirely. In a month more his health was completely re-established.

Having given those cases, let us now look to the general features of the disease. Thymic asthma attacks children from the age of three weeks to eighteen months, but more particularly between the fourth and tenth months. It is characterised by spasms of the chest and great suffering, returning in fits; the respiration fails, and there is observed only an incomplete, short, acute, and hissing inspiration; the air finds a difficulty in passing through the glottis, which is constricted. The sound accompanying the inspirations is like the sonorous sound in hooping cough, but is finer, more acute, and the note is higher. The spasm of the neck resembles that of hysterical females, or those affected with disease of the heart. In some children there are five or six inspirations, at first hissing, afterwards deeper and more painful, alternating with an expiration scarcely perceivable, the noise of which is like the sound in croup. In violent fits the respiration is completely suspended. The acute cry in inspiration is heard either in the beginning of the fit, when it is soon smothered by the respiration becoming suspended; or it is heard towards the end of the fit, when the patient begins to take breath. This cry is a constant and pathognomonic sign of the disease. The other phenomena that supervene are the natural effects of the want of respiration. The child bends the trunk backwards with violence, or when the fit is intense falls backwards, the countenance indicating painful anxiety: the face at first is blue, afterwards pale; the nostrils are expanded; the eyes fixed; the hands cold, with the thumbs clenched. There are occasionally involuntary excretions; the fit lasts from half a minute to three minutes, after which the patient cries and is ill at ease for some time, but soon recovers his habitual cheerfulness. Children of delicate constitutions, or after violent fits, remain a longer time pale, cast down, and disposed to sleep. In the intervals they appear to enjoy perfect health, and present no symptom to distinguish them from children of the best constitution. Indeed, Kopp states, that in the intermissions the beating of the heart cannot be distinctly perceived, and that the tongue is always a little protruded; but the latter sign is not always constant, and there are many perfectly healthy children in whom it is sometimes difficult to hear the sounds of the heart. The fits of suffocation set in more particularly when the child awakes, is vexed, or attempts to swallow with avidity, and in general in all those motions in which the organs of respiration are interested. At first they are of rare occurrence, becoming afterwards more frequent, and more easily induced, until they reappear at length ten or twenty times a day. In the last named state death often takes place during a fit, which seizes on the child at the moment that he is laughing joyously; but very often the disease passes to a second period, characterised by general epileptic convulsions. The epileptic and asthmatic attacks do not always coincide, but rather alternate. Caspari has observed that the muscles of the hand, and the adductors of the thumbs, are convulsively contracted even during the intermissions. Death in this stage of the disease commonly occurs in a fit of apoplectic suffocation, and often is quite instantaneous, without the slightest precursory symptom.

On examination after death, the first signs that strike one are those of asphyxia. The livid appearance of the skin, stasis of blood in the brain and lungs, flaccidity of the heart, and the foramen ovale very often not closed; but the most remarkable phenomenon is the hypertrophy of the thymus. The development of this gland takes place both in length and breadth, but most of all in thickness. When the thymus is very much thickened, the lungs are compressed and pushed aside; these organs in some cases contract adhesions with the large venous and arterial trunks of the chest and neck. The tissue of the gland is either in a normal state, or, which is more frequent, is found denser, redder, more fleshy, but without any trace of inflammation, induration, tuberculization, or any other degeneracy. On cutting into it there occasionally exudes a milky liquor.

Dr. Kornmaul speaks of a thymus weighing fourteen drachms; F. Plater of one weighing half an ounce; Dr. Hirsch of a gland weighing nine and a half drachms; Dr. Van Velsen of one weighing nine drachms: the weight in general varies from six to seven drachms.

Dr. Hirsch very reasonably considers the only true thymic asthma to be that de-

pending on a hypertrophy of the gland, and distinguishes it from those cases where the new-born child dies of suffocation, from the congenital development of the gland not allowing respiration: and also those cases where the thymus presents a tuberculous, schirrous, fatty, or ulcerated alteration, &c. &c.

All these changes have quite a distinct pathological character, and do not belong, like simple hypertrophy, exclusively to childhood. Thus limited, thymic asthma constitutes a disease peculiar to childhood, presenting peculiar symptoms, progress, and etiology, and requiring peculiar treatment. The duration of this affection varies from three weeks to twenty months; sometimes several months pass without the recurrence of spasms, until they are brought on by some intervening disease: in the early stages the cure is possible.

Among the predisposing causes of thymic asthma are ranged, first, scrofulous habit; second, weakness of constitution; third, pulmonary affections, such as phthisis; fourth, affections of the womb of the mother; fifth, hereditary disposition, and that more particularly in the male sex. All diseases of the bronchial system favour the development of this disease. Teething, and certain affections of the bowels and mesenteric glands, are also predisposing causes.

Thymic asthma seems not to have been entirely unknown to other physicians; thus Dr. Marsh * relates a series of observations of a disease which he describes under the name of spasm of the glottis, and which is evidently the same as Kopp's asthma; but the Irish physician appears not to have made any *post-mortem* examination, and makes no mention of the disease of the thymus. Alexander Hood † found enlarged thymus glands in seven children, and two adults who had died of asthma. Richa ‡, Verdries §, and Hert ||, who wrote nearly a century ago, recognized hypertrophy of the thymus as a cause of asthma in children. P. Frank ¶ says, that in puerile asthma the bronchial glands, and particularly the thymus, have been found tumified in a remarkable manner. However, to Dr. Kopp belongs the honour of having first given a certain history and diagnosis of this disease, and of having published the first treatise respecting it *ex professo*.

Kopp's asthma is distinguished from *Millar's asthma* by the greater number and shorter duration of the fits, as well as by its progress being more chronic.

In chronic hydrocephalus children mostly awarke starting, hold their breath, and fall into a state analogous to the fit; in the thymic asthma the same accidents occur when they cough or cry. It will be easy to diagnosticate the first of these diseases by the decided symptoms that are peculiar to it; yet there seems to exist a relation between these two diseases. M. Hirsch recommends an examination of the thymus in autopsies of children who have died of acute hydrocephalus.

But there is one state with which thymic asthma might be easily confounded: very often with irritable children who have been much indulged, the respiration is suspended, and many of the phenomena of thymic asthma appear at a moment when they may be crying under the influence of bad temper. But the symptoms in such a child are distinguishable from those of a child affected with thymic asthma, for the stopping of the breath will occur with the former only in a moment of irritation, and never on awaking, nor in swallowing, as happens in the true asthmatic fits.

From these considerations Dr. Hirsch defines Kopp's asthma to be a disease peculiar to infancy, characterized by tonic spasm of the lungs, larynx, and glottis, returning in fits extending at a later period to the cerebro-spinal nervous system, under the form of epileptic convulsions, and causing death by suffocation, by apoplexy, or by asphyxia.. The cause of this disease consists in a hypertrophied thymus nowise altered in its substance, which by its weight and volume presses on the heart, the lungs, the large arterial and venous vessels, and prevents the free exercise of their functions. The prognostic is almost always fatal; however, when the subject is robust, and but little disposed to catarrhal affections, when the case is recent, the paroxysms weak and remote, and that it is not complicated with epileptic convulsions, some hope may be entertained. The indications are various.

1st, *During the fit.* The only thing to be done is to put the child standing up, or to incline the body forwards, to strike him lightly on the back, and to throw a little cold water in his face; any other assistance would be useless.

2nd, *To moderate the violence of the spasms.* For this purpose aq. lauro-cerasi in small and graduated doses, musk, assafœtida, zinc, and according to Paganstecher, the cyanuret of zinc, may be successfully employed.

3rd, *To avoid congestions of the heart or lungs, and to prevent increased activity of these organs.* A very low diet, abundant and

* Dublin Hospital Reports and Communications.

† Edinburgh Journal of Medical Science.

‡ Constitutiones Epidemicæ Taurinenses, 1728.

§ Dissertatio de Asthmate Puerorum. Giess. 1726.

|| Ibid. Göttinger gelehrte Ang. 1832.

¶ Epitom 6. 2. p. 175.

often-repeated local bleedings. Issues on the chest, frequent energetic purgatives, with aqua lauro-cerasi, will succeed in this object; the evacuating and antiphlogistic method is best employed with robust children. The antispasmodic treatment should be had recourse to with children of delicate constitution; but according to the exigency of the case, both may be combined with the best effect.

4th, *To combat directly the cause of the disease.* By antiphlogistic, evacuant, and derivative means, the development of the thymus may be arrested. For the purpose of diminishing the growth of the gland, several remedies have been proposed, viz. mercurials, antimonials, cicuta, digitalis, animal charcoal, and iodine. These means sometimes succeed, but their success is by no means constant; however, by uniting them with other agents, and particularly by enforcing a strict regimen, we may sometimes succeed in curing a disease which at all times presents alarming characters, and the extreme gravity of which deserves the attention of all practical physicians.—From the *Gazette Médicale de Paris*, and *Dublin Med. Journal*, July, 1836.

FLUORINE.

M. Baudrimont states that he succeeded in isolating fluorine two years since; but he did not announce this discovery because he could not obtain it without a large admixture of oxygen gas. The process by which he first obtained fluorine was by passing fluoride of boron over minium heated to redness, and receiving the gas in a dry vessel. His present method is to treat a mixture of fluoride of calcium and binoxide of manganese with sulphuric acid in a glass tube; but the gas thus obtained is mixed with the vapour of hydrofluoric acid and fluosilicic acid gas; this mixture, however, does not interfere with the observation of the principal properties of fluorine, which is a gas of a yellowish brown colour, and possesses an odour resembling chlorine and burnt sugar: indigo is bleached by it; it does not act upon glass, but combines directly with gold.—*L'Institut*, April 1836. *Lond. and Edin. Phil. Mag. and Journ. of Science.*

NEW MEDICAL BOOKS.

Anatomical Description of the Arteries of the Human Body. By P. B. Lucas. 12mo. 4s. 6d. bds.

The Practical Anatomy and Elementary Physiology of the Nervous System. By F. Le Gros Clark. Post 8vo. 9s. bds.

Popular Surgery; from the French of M. Mayor, with Notes and Additions, by T. Cutler, M.D. Fcp. 8vo. 4s. bds.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

August 18, 1836.

William Fisher Moore, Preston, Lancashire.
John Spence, Kirkstall, near Leeds.
Richard Laslett, Goodnestone, Kent.
Edgar Bull, Newtown, Montgomeryshire.
John Watson, Wakefield, Yorkshire.
Aaron Little, Biddextone, Wilts.
Benjamin Clarke, Saffron Walden.

August 25, 1836.

Alfred Prideaux, Plymouth.
Theophilus Clarke, Brighton.
James Robinson, Pontefract.
William Bell, Whitehaven.
Wm. Daniel Beard, Island of St. Christopher, W.I.
William Lambe, Liverpool.
Richard Langworthy, Modbury.
Edward Hetherington, Ropley, Hampshire.
William Ayre.
William Benson, Whitfield.

WEEKLY ACCOUNT of BURIALS,

From Bills of Mortality, *Aug.* 23, 1836.

Abscess	4	Inflammation	14
Age and Debility	27	Bowels & Stomach	9
Apoplexy	3	Brain	4
Asthma	4	Lungs and Pleura	6
Cancer	2	Insanity	3
Childbirth	1	Liver, diseased	4
Consumption	34	Locked Jaw	1
Convulsions	32	Measles	4
Croup	6	Mortification	2
Dentition or Teething	9	Paralysis	1
Dropsy	7	Scrofula	1
Dropsy on the Brain	7	Small-pox	7
Fever	7	Spasms	1
Fever, Scarlet	1	Thrush	1
Fever, Typhus	1	Tumor	2
Fistula	1	Venereal	1
Gout	2	Unknown Causes	6
Hæmorrhage	1		
Hooping Cough	4	Casualties	4

Decrease of Burials, as compared with the preceding week . . 86

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

Aug. 1836.	Thermometer.		Barometer.	
Thursday . 18	from 48	to 73	29·98	to 29 86
Friday . . 19	53	69	30·07	30 03
Saturday . 20	44	63	29 91	29·56
Sunday . . 21	44	66	29·81	29·83
Monday . . 22	47	67	29·74	29·62
Tuesday . . 23	53	61	29 54	29 64
Wednesday 24	47	61	29 83	30 05

Prevailing winds, W. by S. and N.E.
Except the 19th and 21st generally cloudy, with frequent and heavy showers of rain.
Rain fallen, 1 inch, and ·1 of an inch.

Charles Henry Adams.

ERRATUM.

Mr. Glen's paper, in our last number, should have been headed "Recto-vesical," instead of "Recto-vaginal" fistula.

Wilson & Son, Printers, 57, Skinner-St. London.

THE
LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, SEPTEMBER 3, 1836.

LECTURES
ON
MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE XLIX.

IN our last lecture we examined some of the constituent principles of opium: others yet remain for examination.

Para morphia, or Thebaïne.

History.—Para-morphia was discovered in opium by Pelletier, in 1835. It seems to be identical with the the *Thebaïne* of Courbe.

Properties. — It is a white crystalline fusible solid, having an acrid styptic taste, very soluble in alcohol and æther, but hardly at all soluble in water. It possesses alkaline properties, and dissolves in weak acids. From these solutions it is precipitated by alkalies. An excess of alkali cannot dissolve it, unless, indeed, the alkaline solution be very concentrated. It fuses at 302°, but does not volatilize at any temperature.

Composition.—It consists of—

Carbon	71·310
Hydrogen	6·290
Nitrogen	4·408
Oxygen	17·992

Hence its composition appears to be the same as that of morphia, with which it is, therefore, isomeric. Couerbe says that by fusion the crystals lose 2 atoms of water.

Characteristics.— It is distinguished from morphia by not reddening on the addition of nitric acid, by not becoming blue on the addition of the perchloride of iron, and by not forming crystallizable salts with acids. From codeia it differs in not crystallizing in large crystals, in not forming crystallizable salts, and in being precipitated from its acid solution by ammonia. With meconine and narceine it has no analogy. It resembles narcotina more than any other substance, but is distinguished by the crystals being shorter, or granular, and wanting the pearly brilliance possessed by those of narcotina, by its taste, by its greater solubility in alcohol, and by nitric acid when dropped on it converting it into a substance like a soft resin, before dissolving it.

Effects.—Magendie says that one grain injected into the jugular vein, or placed in the pleura, acts like brucia or strychnia, and causes tetanus and death in a few minutes.

Pseudo-Morphia.*

This a substance which Pelletier has occasionally met with in opium. It is a whitish solid, which, like morphia, is reddened by nitric acid, and made blue by contact with the perchloride of iron. It is composed of

Carbon	52·74	or 27 atoms	27×6 = 162
Hydrogen	5·81	or 18 atoms	18
Nitrogen	4·08	or 1 atom	14
Oxygen	37·37	or 14 atoms	14×8 = 112
	100·00	or 1 atom pseudo-morphia	306

It is not poisonous: at least nearly 8 grains (demi-gramme) given to a rabbit had no effect. Pelletier thinks that pseudo-morphia must be some combination of morphia in which this substance has lost its poisonous properties.

Having now concluded our examination of the crystalline principles of opium, I shall endeavour to represent their characteristic properties in a tabular form.

* I ought to state that the account here given of Para-morphia and of Pseudo-morphia is taken from Pelletier's Memoir, as I have had no opportunity hitherto of verifying the statements.

TABULAR VIEW OF THE PRINCIPAL CHARACTERS OF THE CRYSTALLINE PRINCIPLES OF OPIUM.

Characters.	Morphia.	Codeia.	Narcotina.	Meconine.	Narceine.	Para-morphia, or Thebaïne.	Pseudo-morphia.
Taste	Bitter	Bitter	Insipid	Rather acrid	Slightly bitter and metallic	Rather acrid and metallic	....
Fuses at	Above 240°	302°, or in boiling water	338°	194°, or in boiling water	198°, or in boiling water	302°	Hardly fusible
In cold Water ..	Nearly insoluble	Soluble in 80 parts	Insoluble	Soluble in 265 parts	Soluble in 375 parts	Scarcely soluble	Almost insoluble
In boiling Water	Soluble in 100 parts	In 17 parts	Slightly soluble	In 18 parts	In 230 parts	....	Almost insoluble
In cold Alcohol ..	Soluble in 40 parts	Soluble	In 100 parts	Soluble	Soluble	Soluble in 10 parts	Almost insoluble
In cold Æther ..	Sparingly soluble	Easily soluble	Easily soluble	Soluble	Insoluble	Very soluble	Almost insoluble
In caustic Alkalies	Soluble	Insoluble	Insoluble	Soluble	....	Insoluble except in very concentrated solutions	Very soluble in potash & soda
Chlorine	....	....	....	Coloured blood-red	....	....	....
Iodine	....	....	....	....	Coloured blue	....	....
Nitric Acid	Coloured red	....	....	Yellow	If dilute, blue	Yellow	Coloured red
Muriatic Acid ..	....	....	....	....	Blue	....	....
Iodic Acid	Iodine set free	....	....	....	....	....	....
Perchloride Iron .	Coloured blue	....	....	....	....	....	Coloured blue
Infusion Galls ..	Precipitate	Precipitate	Precipitate	....	....	....	....
Nitrogen	Present	Present	Present	Absent	Present	Present	Present
Water of Crystallization	2 atoms	2 atoms	....	....	....	2 atoms	....
Atomic Weight ..	284	260	370?	90	351	284	306
Action on Vegetable Colours	Alkaline	Alkaline	No effect	No effect	No effect	Alkaline	....
Relation to Acids	Salifiable	Salifiable	Salifiable	Not salifiable	Not salifiable	Not salifiable	Not salifiable
Effects	Poisonous; a cerebro-spinant	A cerebro-spinant	Inert?	Inert?	Inert?	Causes convulsions	Not poisonous

Volatile odorous principle of Opium.

If water be distilled from opium, we obtain a colourless limpid liquid, having a strong odour of opium, and which by keeping deposits a ropy matter, shewing that some organic substance was present. Hitherto all attempts to isolate this volatile odorous principle have failed. Nysten swallowed two ounces of the distilled water of opium without any sensible effect. Orfila injected a like quantity into the jugular vein of a dog, but the animal did not appear to be incommoded. Hence, therefore, this principle either is inert, or possesses very little activity.

Extractive matter of Opium.

Bucholz found in opium 36 per cent. of a brownish extractive matter. Now it has been suspected that this substance is one of the active principles of opium. The reasons for this notion are the following: — In the first place, Linbergson asserts that after the morphia has been separated from an infusion of opium by magnesia, the filtered liquor gives by evaporation an extract which produces the same kind of narcotic effect that opium does. Secondly, the effects of the known active principles of opium are not sufficiently powerful to authorize us to refer the whole of the active properties of opium to them. Thus on an average 100 parts of opium yield about 8 parts of morphia, (the most active of the known constituents of opium) and, therefore, if this alkali were the only active principle, it ought to be more than 12 times as powerful as opium is Now we know that morphia is but little, if at all, more active than opium, and, therefore, this last-mentioned substance either contains some other active principle, or the activity of morphia is surprisingly increased by the principle or principles with which it is naturally in combination.

Detection of Opium.

On examining the alimentary canal of persons poisoned by opium, it not unfrequently happens that no traces of the poison can be obtained. I have met with two cases of this kind: one very recently. A woman swallowed an ounce of laudanum in the evening, and died within twelve hours: she vomited during the night, but the medical man in attendance was unable to recognize any odour of opium in the ejected matter. I could not detect the least trace of the poison in the contents of the stomach. In Dr. Christison's work on Poisons, analogous cases are noticed, both on the authority of himself and of others. It appears, then, that either opium is rapidly absorbed, and its unassimilated parts thrown out of the system by the exeretories, or the constituents of this substance are digestible and assimilable.

Opium may be recognized by its physical or chemical properties, or by its effects.

(*a.*) *Recognition of opium by its physical characters.*—Whether in the solid state or dissolved in some menstruum, opium possesses three characters by which it may frequently be recognized. These are—a more or less brown colour, a remarkable odour, and a bitter taste. I am acquainted with one substance only which in these respects might be confounded with opium; —it is thridace, lactucarium, or lettuce opium. Of the three physical properties for opium before-mentioned, the odour is by far the most characteristic: it is, as Dr. Christison has observed, strongest when the stomach is just opened, or when the liquid possessing it is just reaching the boiling point. The opiate, however, is frequently masked by other odours, and is then not available.

(*b.*) *Recognition of opium by chemical tests.* —The chemical tests for opium are those for meconic acid and morphia, already mentioned. Certain precautions, however, are necessary in their application; and to simplify as much as possible the proceedings, I shall divide the process into three stages.

Stage 1. *Preliminary proceeding.* — The stomach and duodenum, (cut into small pieces) with their contents, are to be digested in distilled water, acidulated with acetic acid, and frequently stirring. The acid serves two purposes: it facilitates the solution of the morphia in the opium, and it coagulates some organic matters (caseum, for example.) This is then to be filtered, first through muslin, afterwards through paper.

Stage 2. *Application of trial tests.*—To a small portion of the filtered liquid add a few drops of some persalt of iron (the tincture of the muriate of the shops answers very well.) If opium be present, the liquid acquires a more or less dark red tint, principally from the action of the meconic acid on the iron. To another portion of the filtered liquid add some solution of starch, and then iodic acid. If much opium be present, the blue iodide of starch will be speedily formed; but if the quantity of opium be small, an hour or two is sometimes required for the effect to be produced.

With respect to these trial tests, I may observe, that if a red colour be generated on the addition of the ferruginous salt, we are not to infer that it is necessarily produced by meconic acid, since several other substances have the same effect: thus the

saliva and mustard. So also the iodic acid test is not to be considered absolute; for it must be recollected that sulphuretted hydrogen will produce with iodic acid and starch the same blue compound that morphia does. But, on the other hand, if neither of these tests act characteristically, we are not to conclude the absence of opium; for this substance may be present, though in very small quantity.

Stage 3. *Final proof.*—The following is the process recommended by Dr. Christison:—Evaporate the filtered liquor (obtained in stage 1), by means of a water bath, to the consistence of thick syrup; digest and boil the residuum in alcohol, and when cold, filter; afterwards evaporate the alcoholic solution to the consistence of syrup,—dissolve the extract thus obtained in water, and to the filtered liquid add a solution of acetate of lead: meconate of lead precipitates, while acetate of morphia remains in solution. Filter, and wash.

(*a.*) *Examination of the meconate of lead.*—Suspend the meconate of lead in water, and decompose it by a stream of sulphuretted hydrogen. Filter, to get rid of the black sulphuret of lead. Or we may decompose the meconate of lead by sulphuric acid, which forms an insoluble sulphate of lead. The filtered liquid contains meconic acid, and is to be tested, as already mentioned, by a persalt of iron, by chloride of gold, and by sulphate of copper.

(*b.*) *Examination of the solution of acetate of morphia.*—To get rid of the excess of acetate of lead which this solution contains, pass a current of sulphuretted hydrogen through it, and filter while cold. When the liquor has been concentrated by evaporation, the tests for morphia, already mentioned, are to be applied, namely, nitric acid, perchloride of iron, and iodic acid.

Remarks.—Dr. Christison observes, " it will often happen in actual practice that the only indication of opium to be procured by the process consists in the deep red colour struck by permuriate of iron with the meconic acid. Now, will this alone constitute sufficient proof of the presence of opium? On the whole, I am inclined to reply in the affirmative." I regret I cannot agree with him in this inference, since several other substances produce the same colour, and two of these are very likely to be met with in the alimentary canal, namely, mustard and saliva. In regard to the latter substance, he remarks, " it is seldom possible to procure a distinct blood-red coloration from the saliva, except by evaporating a large quantity to dryness, and redissolving the residue in a small quantity of water; and I question whether it can be separated at all after the saliva is mixed with the complex contents of the stomach." I am sorry again to be at issue with so high an authority, but our results being discordant, it is but right I should state my experience. My saliva always distinctly and unequivocally reddens the persalts of iron; and very recently the pupils engaged in the practical class of chemistry, in this school, examined their saliva, and found it became distinctly red on the addition of the tincture of muriate of iron. I have several times obtained from the stomach a liquid which reddened the salts of iron, though there was not the least reason to suspect the individual had taken opium before death.

With respect to the muriate or chloride of iron as a test for morphia, I must remind you of the fact, that an infusion of cloves or allspice gives a similar appearance with it to that given by morphia.

(*c.*) *Recognition of opium by its effects.*—The presence of opium in the stomach has been sometimes inferred from the coma, paralysis, or convulsions, produced by the contents of this viscus when given to animals, as dogs, guinea-pigs, and chickens. I need hardly say that this is not the only poison which causes these effects, and therefore we should have stronger proofs (such as the odour or chemical properties of opium, or moral circumstances) before we are justified in inferring the presence of opium.

Physiological effects of opium: (*a.*) *On vegetables.*—The effects of opium on vegetables are interesting to us, since they are analogous to those produced on animals. They have been principally examined by MM. Marcet and Macaire. The stamina of the barberry (*Berberis vulgaris*), and the leaves of the sensitive plant (*Mimosa pudica*), lost their contractility, and soon died, when stems of these vegetables were immersed in an aqueous solution of opium. Plunging the stems in a solution of corrosive sublimate, or of arsenious acid, has the same effect; but when either of these minerals was used, the barberry stamina remained stiff and hard, and could not be moved without fracture, — and the leaves of the mimosa were stiff; whereas, when an infusion of opium was employed, the stamina and leaflets were completely soft and flexible; so that if it were admissible to apply to the diseases of vegetables the terms used for the diseases of animals, we should say that opium killed plants by paralysing them, while arsenic and corrosive sublimate caused rigidity somewhat analogous to convulsions, or tetanus. Charvet, however, states that he watered a sensitive plant with a moderately strong infusion of opium for

48 days, without the irritability being sensibly affected.

(*b.*) *On animals generally.* — The most complete series of experiments made with opium on the animal kingdom, is that of Charvet. He tried its effects on mammals, birds, reptiles, amphibials, fishes, insects (both in their perfect and larval states), the annelides, the mollusca, polypiphera, and polygastrica; and found that it acted on all as a poison, but with somewhat different effects, according to their organization. Thus on man it may produce congestion of the brain (marked by sopor and apoplectic symptoms), or irritation of the brain and spinal marrow (indicated by convulsions and pain), or a sedative effect (manifested by paralysis).

In other mammals we have, for the most part, two kinds of effects; the one of irritation, the other of diminished nervous power, symptoms of congestion being either altogether wanting, or very slight. This difference of effect corresponds with a difference in the development of the brain. Thus the brains of dogs are much less highly developed than those of men, and in them sanguineous congestion is not so evident; and when it does occur, is always less in degree, —coma, loss of consciousness, and deep sleep, never being observed. In the ruminants the brain is less developed than in the carnivora, and the determination of blood towards it, weaker; stupor and other symptoms of cerebral congestion are never observed.

In birds, as in the lower mammalia, poisoning by opium puts on two forms: the one depending upon irritation, the other upon a weakened condition of the nervous system, but which is accompanied by stupor, so that in this class of animals the cerebral congestion must be greater than in the lower mammalia.

In reptiles, amphibia, and fishes, we have only one kind of poisoning,—that which is attended with diminished nervous energy. We have, indeed, as in mammals and birds, two orders of symptoms: the one arising from irritation of the brain and spinal marrow; the other from a weakened state of the nervous system; but death is alone produced by the latter. The explanation of these facts is obvious: the brain is much smaller in the three lower vertebrated classes than in the two upper ones. Moreover, its influence diminishes with its size, as is shewn by the fact that in the lower vertebrata we may destroy a part of the brain or spinal marrow, without producing immediate death. This, therefore, explains why the irritation of the nervous centres produced by opium is of itself insufficient to occasion speedy death.

In the invertebrated animals we observe no symptoms of irritation caused by opium This poison in them acts only on the contractile tissues, and produces symptoms of weakness, or loss of contractile power.

You observe, then, that in the animal series the action of opium varies with the degree of development and influence of the nervous system; and that in the lowest orders the effects are quite analogous to those which MM. Macaire and Marcet observed in vegetables.

(*c.*) *Effects of Opium on Man.*

1. *First degree of operation.*—In *small doses*, as from a quarter of a grain to one grain, opium generally acts as a stimulant, though in this respect the symptoms are not uniform. Usually the vascular system is somewhat excited, and a sensation of fulness is experienced about the head. Dr. Crumpe took one grain of opium when his pulse was at 70, and the alteration in the number of beats was as follows:—

In	2	5	10	15	20	25	30	35	40	45	50	55	60 minutes.
Pulse beat	70	74	76	76	74	74	74	72	72	70	70	70	70

The excitement in the cerebral vascular system is accompanied by alterations in the condition of the nervous functions. The mind is usually exhilarated; the ideas flow more quickly; a pleasurable or comfortable condition of the whole system is experienced, difficult to describe; there is a capability of greater exertion than usual. These symptoms are followed by a diminution of muscular power, and of susceptibility to the impression of external objects; a desire of repose is experienced, with a tendency to sleep. While these effects are taking place, the mouth and throat become dry, and hunger is diminished, though the thirst is increased; and slight constipation usually follows.

Such are the common effects of a small dose of opium on persons unaccustomed to its use; but by repetition, the influence of this agent becomes remarkably diminished; and those, therefore, who resort to it for the purpose of producing a pleasurable stimulus, are obliged to increase the quantity, in order to keep up an equal effect. In a previous part of the course *, I

* MEDICAL GAZETTE, vol. xvii. p. 96.

have alluded to the explanations which have been attempted to account for this and other analogous facts.

An opinion has been prevalent both among the profession and the public, that the practice of opium-eating is injurious to health, and tends to shorten life. This opinion has been derived, as Dr. Christison observes, in part from the injurious effects which opium, used medicinally, has on the nervous system and functions of the alimentary canal,—partly on the reports of travellers in Turkey and Persia, who have enjoyed opportunities of watching the life and habits of opium-eaters on a large scale. A few years ago, a Life Assurance Company, acting on this general opinion, resisted payment of a sum of money, on the ground that the insurer (the late Earl of Mar) had concealed from them a habit which tends to shorten life. But this opinion is certainly not supported by reference to the known cases which have occurred in this country. In Dr. Christison's work, an abstract is given of eleven cases, the general result of whose histories "would rather tend to throw doubt over the popular opinion." The parties to the trial above alluded to ultimately compromised the case.

In those cases of disease (usually cancerous) in which enormous doses of opium are taken to alleviate pain, I have invariably observed constipation produced. But Dr. Christison says, "constipation is by no means a general effect of the continued use of opium. In some of the cases mentioned above, no laxatives have been required; in others, a gentle laxative once a week is sufficient."

2. *Second degree of operation.*—Given in a *full medicinal* dose (as from 2 to 4 grains), the stage of excitement is soon followed by that of depression. The pulse, which at first is increased in fulness and frequency, is afterwards reduced below the natural standard. The effects of $2\frac{1}{2}$ grains on Dr. Crumpe (when his pulse was beating at 70) were as follows:—

In	5	10	15	20	25	30	35	40	45	50	55	60	75	90 minutes.
Pulse beat	74	74	74	76	78	80	72	70	64	64	66	70	70	70

The skin becomes hot—the mouth and throat dry—the appetite diminished—the thirst increased—and frequently nausea, or even vomiting, are induced. The symptoms of excitement soon pass away, and a state of torpor succeeds: the individual feels indisposed to exertion,—the muscular system appears enfeebled,—the force of external impressions on the organs of the senses is diminished,—and the ideas become confused. This state is followed by an almost irresistible desire of sleep, which is frequently attended by dreams,—sometimes of a pleasing, at others of a frightful nature.

These effects are usually succeeded by constipation (which may continue for several days), by nausea, furred tongue, headache, and listlessness.

3. *Third degree of operation: poisonous effects of opium.*—Dr. Christison has so briefly summed up the effects of a poisonous dose of opium, that I cannot do better than quote his statement. "The symptoms of poisoning with opium, when it is administered at once in a dangerous dose, begin with giddiness and stupor, generally without any previous stimulus. The stupor rapidly increasing, the person becomes motionless and insensible to external impression; he breathes very slowly, generally lies quite still, with the eyes shut and the pupils contracted; and the whole expression of the countenance is that of deep and perfect repose. As the poisoning advances, the features become ghastly, the pulse feeble and imperceptible, the muscles exceedingly relaxed, and, unless assistance is speedily procured, death ensues. If the person recovers, the sopor is succeeded by prolonged sleep, which commonly ends in 24 or 36 hours, and is followed by nausea, vomiting, giddiness, and loathing of food."

I propose now to examine the action of opium on each organ or apparatus of organs separately.

1. *Action of opium on the cerebro-spinal system.*—Taken in small or moderate doses, we observe there is first produced excitement of the vascular system of the brain, accompanied with corresponding excitement in the cerebro-spinal functions. This state, however, is succeeded by that of depression. In large or poisonous doses, the leading symptom is sopor—that is, a state analogous to profound sleep, from which the patient can be roused, though with difficulty. In the latter stage of poisoning this symptom is succeeded by coma—that is, by profound sleep, from which the patient cannot be roused. Sopor is usually accompanied either with actual paralysis of the muscular fibres, or with a diminished power almost amounting to it; both of which states doubtless arise from the same condition of the cerebro-spinal system which produces sopor or coma. This state is usually supposed

to be sanguineous congestion,—in other words, an accumulation of blood in the cerebral vessels, and which must arise from one or both of two causes—an increased quantity of blood supplied by the arteries, or an impediment to its return by the veins. Those pathologists who contend for the incompressibility of the cerebral substance, account for the dilatation of one set of vessels by assuming the compression of another. The first effect of opium is supposed to be excitement: the arteries propel the blood more rapidly, and with greater force than usual, but their diameter is little or not at all changed; and we observe merely symptoms of excitement. Shortly, however, they begin to expand, and the increased space necessary for their enlargement can only be acquired by a corresponding compression of the veins, since the cerebral substance is supposed to be incompressible, or nearly so. In this way, then, an impeded state of the circulation within the skull is supposed to arise, and the consequences of which are stupor and even paralysis.

But in some cases we have delirium in the place of sopor or coma, and convulsions instead of paralysis. These are to be regarded as exceptions to the general rule, and are accounted for, pathologically, by supposing they depend on a state of irritation or excitement set up in the nervous centres, and which usually, though not invariably, terminates in congestion.

Another effect of opium is diminished sensibility. Thus the whole body becomes less susceptible of painful impressions; in dangerous and fatal cases, the eyes are insensible to light,—the ears to sound. This state has been accounted for by supposing that the functions of the sensitive nerves are diminished or suspended by the congested condition of the brain.

From these effects of opium on the cerebro-spinal system the following inferences may be drawn:—

(*a.*) That it is an objectionable agent in apoplexy, phrenitis, and paralysis.

(*b.*) That under proper regulations it is a remedy which may be used to stimulate the cerebro-vascular system, to promote sleep, to diminish inordinate muscular contraction, to diminish the sensibility of the body, and thereby to alleviate pain.

2. *Action of opium on the digestive organs.*—The usual effects of opium on the organs of digestion are the following:—It diminishes secretion and exhalation from the whole canal; thus it causes dryness of the mouth and throat, and diminishes the liquidity of the stools: it excites thirst, lessens hunger, checks the digestive process (for in some animals poisoned by opium, food which they had taken a short time previously has been found in the stomach unchanged): and in some cases it excites vomiting. Mr. Kerr tells us, that in the famine which prevailed in the East Indies, in the year 1770, opium was purchased by the unhappy sufferers, at exorbitant prices, to allay the cravings of hunger, and to banish the dreadful prospect of death. My friend, Colonel Kemp, of the 12th regiment of Bombay Infantry, tells me he also has known opium used by the Indians, during a famine, to allay the pains of hunger, though not to banish the prospect of death, as above stated; since no persons meet death more easily than the natives of India. Colonel Kemp also tells me that the astonishing marches made by the Pindaree horsemen were effected by giving the horses opium, their masters not having time to give them their usual food. It diminishes the sensibility and contractility of the digestive organs: hence the difficulty, in severe cases of poisoning, of producing vomiting. The constipation which follows the use of opium depends partly, on the same cause, and in part also on the diminished excretion of bile, and diminished secretion from the gastro-intestinal mucous membrane.—Sprœgel found the choledic ducts of animals to whom opium had been given, filled with bile; yet it had not passed into the intestines, for the fæces were scarcely tinged by it, but had the same appearance which we observe them to have in jaundiced patients.

From these effects of opium on the digestive organs, we may draw the following inferences:—

(*a.*) That in diminished secretion from the gastro-intestinal membrane, in extreme thirst, in loss of appetite and weak digestion, in obstinate costiveness, and in diminished excretion of bile, opium is an objectionable remedy.

(*b.*) That under proper regulations opium is an admissible remedy for the following purposes:—To diminish excessive hunger; to allay pain, when unaccompanied by inflammation; to diminish the sensibility of the digestive organs, as in cases of acrid poisons, and in the passage of biliary calculi; to produce relaxation of the muscular fibres of the alimentary canal (as in colic and diarrhœa), and of the gall ducts (as in the passage of calculi), and to diminish excessive secretion from the intestinal canal, as in diarrhœa.

3. *Action of opium on the vascular system.*—Opium certainly influences the movements of the heart and arteries; but the nature of the influence does not seem to be uniform, since in some cases we observe the pulse increased, in others diminished in frequency; and a like variation is noticed

in its fulness. Moreover, it appears that these variations may occur in the same case at different stages. To a certain extent we observe a relation between the condition of the pulse and that of the cerebro-spinal functions. Thus, when convulsions occur, we usually have a very hurried pulse,—whereas, when sopor or coma supervenes, the pulse becomes slower than natural. We can easily believe that the muscular fibres of the heart must suffer a diminution of power in common with other muscular fibres, and hence the contractions become weaker. It is also probable that the contractile coat of the arteries and capillaries (the muscularity of which I shall not stop to inquire into) equally suffer. Now Wirtensohn supposes that the fulness of the pulse sometimes observed in poisoning by opium, arises from the insufficient power of the heart to propel the blood through this paralysed or weakened capillary system. The accumulation of blood observed in the large venous trunks and cavities of the right side of the heart, is supposed to arise from the obstruction experienced to its passage through the pulmonary vessels.

4. *Action of opium on the organs of respiration.*—In studying the effects of opium on respiration, we have to recollect that the mechanical part of this function is effected by muscular agency; and as the contractility of the muscular fibre is powerfully influenced by opium, so the respiratory movements are also necessarily modified. Occasionally the primary effect is a slight increase in their frequency; but the secondary effect is almost always of an opposite kind, the respiration being slower than usual; and when coma is present, the breathing becomes of a stertorous kind. In fact, a paralytic condition of the respiratory muscles takes place, in consequence of which inspiration becomes gradually more and more difficult, until eventually asphyxia is induced, which is usually the immediate cause of death. On this subject I have already offered some remarks *.

Another effect ascribed to opium is, that it checks the arterialization of the blood, by diminishing the supply of nervous agency, without which the decarbonization or oxygenization of this fluid cannot take place. It is difficult, however, to distinguish the consequences of this effect from those of asphyxia produced by paralysis of the respiratory muscles.

The last point which I have to notice with respect to the influence of opium over the organs of respiration, is the effect on the membrane lining the trachea and bronchial tubes and cells. In the first place, it diminishes the sensibility of this in common with other parts of the body; and, secondly, it checks the mucous secretion: though this latter effect has been denied by some writers.

A knowledge of these effects of opium on the organs of respiration leads to the following conclusions:—

(*a.*) That this agent is contra-indicated in difficulty of breathing arising from a deficient supply of nervous energy, as in apoplectic cases; that it is improper where the venous, is imperfectly converted into arterial, blood; and, lastly, that it is improper in the first stage of catarrh and peripneumony, both from its checking secretion, and from its influence over the process of arterialization.

(*b.*) That in cases of poisoning by opium, artificial respiration is indicated to prevent asphyxia.

(*c.*) That opium may, under proper regulations, be useful to diminish the contractility of the muscles of respiration, or of the muscular fibres of the air tubes, as in spasmodic asthma; to diminish the sensibility of the bronchia, in the second stage of catarrh, and thereby to allay cough by lessening the influence of the cold air; and, lastly, to counteract excessive secretion from the bronchia.

4. *Action of opium on the urinary organs.*—Authors are not agreed as to the effect of opium on the kidneys, some asserting that it increases, others that it diminishes, the quantity of urine secreted. Thus Dr. Michælis asserts, that in giving opium in venereal cases, he has sometimes found the secretion of urine exceeding in quantity all the fluids drunk. It is undoubted, however, that in most cases a moderate quantity of opium diminishes the excretion, while at the same time it makes this fluid turbid and thick. This does not, however, prove the kidneys to be the part affected. Sprœgel tells us, that when he gave two scruples of opium to dogs, no urine was passed for two days; and under the influence of two drachms of this medicine, the urine was retained for three days. But dissection shewed that the kidneys had not ceased to secrete urine, since the bladder was found distended with this secretion, and its parietes without the least sign of contractility on the application of nitric acid; so that it would appear the non-evacuation of the urine was referrible to the insensible and paralysed condition the vesical coats, and not to the diminished urinary secretion. Charvet has also noticed in dogs, cats, and hares, that the urinary bladder was distended. As, however, in man, opium usually increases the cutaneous exhalation, while in other mammals this effect was not observed, we must

* MEDICAL GAZETTE, vol. xvii. p. 195.

be careful in transferring our conclusions with respect to the influence of opium on one order of animals to another order. But I ought to add, that Welper, of Berlin, always found the bladder full of urine both in man and animals. That opium does really diminish the secretion, as well as the excretion, of urine, seems probable from the experience of Prout, Elliotson, and others, on the use of this medicine in diabetes, in which disease the flow of urine is decidedly diminished under the use of opium.

The ureters and bladder seem affected by opium in an analogous manner; that is, their sensibility and contractility are diminished. With respect to the effect on the first of these parts, the statement seems proved by the well-known beneficial influence of opium in cases where calculi are descending along these tubes. The acute pain is frequently relieved, and the ureters relaxed, so that, as Boerhaave has remarked, large calculi are sometimes allowed to descend from the kidneys along them.

Besides the observations of Sprœgel, before referred to, we have other evidence of the paralysing and benumbing effect of opium on the bladder. In two cases of poisoning by this substance related in the twenty-eighth and thirty-first volumes of the *Medical and Physical Journal*, the bladder was unable to contract on its contents, and attempts to empty it proved useless. In another case related in the *London Medical Review*, for October, 1811, the bladder was in so weak a state, and so nearly approaching paralysis, that it could not retain its contents. Barbier has also noticed the same thing, and quotes the experience of Dr. Bally to the same effect.

These remarks on the effect of opium on the urinary organs lead to the following conclusions:—

(*a*). That in diminished sensibility or contractility, or both, of the ureters or bladder, opium is objectionable.

(*b*). That under proper regulations opium may be a valuable remedy to dull the sensibility of the pelvis of the kidney, in cases of renal calculi; to ease pain and produce relaxation of the ureters when calculi are passing along these tubes; and lastly, to diminish irritation of the bladder, whether produced by cantharides or by other causes.

5. *Action of opium on the cutaneous system.*—Considered as an organ of sense, the cutaneous system is affected by opium in an analogous way to the other organs of sense; that is, its sensibility is diminished. But the skin has another function, that of excretion, and which does not appear to to be at all diminished,—nay, to be increased, by the use of opium; one of the usual effects of this medicine being perspiration, which is, in some cases attended with a pricking or itching of the skin, and occasionally with an eruption. These effects of opium on the cutaneous system point out that this remedy may be used medicinally when we wish to diminish excessive sensibility of the skin; and under proper regulations, and in combination with other sudorifics, to excite perspiration.

6. *Action of opium on the reproductive organs.* (*a.*) *Of men.*—Opium has long been celebrated as an aphrodisiac; and we are told that the Japanese, Chinese, Indians, Persians, Egyptians, and Turks, use it as such. Among other symptoms of excitement produced by the habitual use of large doses of opium, it is not improbable that there may be a heightened condition of the venereal feelings, in consequence of an increased determination of blood to that part of the brain supposed to be devoted to the sexual function, which part the phrenologists assert to be the cerebellum. Moreover, it is said to produce erection; and in support of this statement the following strange story is told:—"Turcæ ad Levenzinum, 1664, contra Comitem Lud. Souches pugnantes, opio exaltati, turpiter cæsi et octo mille numero occisi mentulas rigidas tulere." In the "*Rapports du physique et du morale de l'Homme*" of Cabanis, you will find this story noticed, and the above-mentioned condition referred to the convulsive movements which affect the body in articulo mortis, and not to an aphrodisiac operation. The effect alluded to, if it really do take place, is probably to be referred to the accumulation of blood in the erectile tissues, arising from a disordered state of the circulation.

(*b.*) *Of women.*—We have little positive information as to the effects of opium on the reproductive organs of women. It is said that the catamenia, lochia, and secretion of milk, are unaffected by it, but that intumescence of the nipples occurs under its use.

Post-mortem appearances.—The most important appearances are those observed in the nervous system, such as turgescence of vessels, effusion of water or of coagulable lymph, and occasionally, though rarely, extravasation of blood.

Whenever redness of the digestive canal is observed, I believe it is referrible to the use of some irritants either along with, or after the opium, such as spirits, ammonia, or emetics.

Modus operandi.—There are various theoretical discussions respecting the action of opium, which I propose to examine briefly under this head.

(*a.*) *Does opium or its active principles be-*

come absorbed?—I believe the answer to this question should be in the affirmative, and for the following reasons:—

1. Barruel asserts that he detected morphia in the blood and urine of a person under the influence of a poisonous dose of laudanum. As, however, these results have not been obtained by Dublanc or Lassaigne, the statement is not to be absolutely relied on.

2. The blood seems to possess poisonous properties, for it is said that leeches suddenly died when applied to the body of a child poisoned by too strong injection of poppy heads.

3. The odour of opium is sometimes recognizable in the secretions and exhalations: thus it is well known that the opiate odour is frequently detected in the breath of persons poisoned by this drug; and Barbier states, it may be also noticed in the urine and sweat. Laennec says that he observed an acid, poisonous (does he mean opiate?) odour in the serous effusion of a man who had taken laudanum, and died with pleuro peripneumonia.

4. The secretions, in some cases, appear to possess narcotic properties. Barbier says he saw an infant who was thrown into a state of narcotism of several hours' duration, in consequence of having sucked a nurse who had previously swallowed a dose of laudanum, to relieve a cramp of the stomach.

(*b.*) *Does the constitutional effect of opium depend on the absorption of this agent, or is it to be referred to an operation on the nerves?* I confess myself a believer in both modes of operation; for I do not think we can at present explain all the phenomena of the operation of opium, without this admission. That at least part of the effect of opium is referrible to absorption, I believe, for the following reasons:—

1. Some of the principles of opium (the odorous at least) get into the blood, and, therefore, probably others do.

2. The constitutional effects of opium are found to be proportionate to the absorbing powers of the part.

3. The effect of opium, when thrown into the jugular vein, is similar to, though more powerful than, that produced by its application to other parts of the body.

(*c.*) *On what part of the body does opium specifically operate?* That the nervous system is the part which primarily is, either alone or principally, affected, is evident from the remarks already made.

(*d.*) *What kind of action does opium set up?* Is this agent to be considered as a stimulant, or a sedative? Or, independent of any alteration it may produce in the degree of the healthy action, does it cause an alteration in the nature or quality of the action? Here is a famous field for hypothesis, but it is one so little satisfactory that I do not think it necessary to enter into any extensive details. Galen declared opium to be cold in the fourth degree; the iatro-chemists declared it to be hot, while the iatro-mechanists referred its operation to mechanical properties. Cullen considered that it destroyed the mobility of the nervous fluid, and consequently acted as a sedative; Brown, on the contrary, declared it to be stimulant; Mayer, said it was both stimulant and sedative—namely, stimulant to the nerves and vascular system, but sedative to the muscles and digestive organs; while Orfila asserts that it exerts a peculiar mode of action which cannot be designated exactly by any of the terms at this moment employed in the materia medica. These examples, selected out of many opinions, will be sufficient to prove how little is really known of the actual action of opium; and I believe we shall save ourselves much time and useless speculation by at once confessing our ignorance on this point.

(*e.*) *In what way does opium, when absorbed, exert its specific influence over the nervous system?* This is a subject which I have already* fully discussed, and must not now reopen it.

Treatment of Poisoning by Opium.

On this point I must be very brief. The treatment may be divided into three parts:—

1. *Use of evacuants.*—Until other and more powerful evacuant means can be obtained, we should have recourse to tickling the throat with the fingers, or with a feather dipped in oil. As domestic emetics, mustard or salt may be exhibited. A dessert spoonful of flour of mustard, or a table spoonful of salt, may be taken, stirred up in a tumblerful of water.

The stomach pump is, on the whole, the best means of evacuating the contents of the stomach; and when it can be procured should always be preferred.

The emetics usually resorted to are the sulphates of zinc and copper: the first is preferred. It should be given in doses of from one to two scruples. The dose of sulphate of copper is less,—from five grains to fifteen. Ipecacuanha or tartar emetic may be resorted to when the other means are not at hand.

Clysters containing fifteen or twenty grains of tartar emetic may be adminis-

* MEDICAL GAZETTE, vol. xvii. p. 38.

tered; or in extreme cases a solution of one or two grains of tartar emetic may be injected into the veins, taking care to prevent the introduction of air. On this subject I have already offered some remarks*.

2. *Use of chemical antidotes.*—There are no known agents which completely destroy the activity of opium by their chemical properties, and which can be resorted to in these cases. Infusion of galls, however, is regarded as the best, though an imperfect antidote. Magnesia, as well as iodine and chlorine, have also been recommended.

3. *Use of therapeutical means to obviate the effects.*—The following are the principal means which have been found efficacious:

(*a.*) *Rousing the patient*, by exercising him up and down a room between two men. It may sometimes be necessary to continue this for several hours.

(*b.*) *Cold affusion.*—Dashing cold water over the head and chest is an exceedingly valuable agent. It oftentimes assists the operation of emetics.

(*c.*) *Irritants.*—The application of irritants to the body is also sometimes a useful practice: thus blisters, and sinapisms to the feet, or boiling water or a hot metallic plate, and even nettles or cowhage, have been recommended.

(*d.*) *Venesection.*—Blood-letting is sometimes necessary; but it can only be safely practised after the opium has been withdrawn from the stomach. Orfila says, under these circumstances it never increases, but in most cases materially relieves, the symptoms.

(*e.*) *Stimulants.* — Ammonia, camphor, musk, coffee, and other stimulants, are sometimes used with advantage.

(*f.*) *Vegetable acids.*— Orfila has found the vegetable acids to be the best antinarcotics. For this purpose, drinks of vinegar and water, lemon juice, or cream of tartar and water, should be given every ten minutes. These agents, however, should not be resorted to until the poison has been evacuated from the stomach.

(*g.*) *Artificial respiration.* — As a last resource, this is on no account to be omitted, several successful cases having been reported. On two previous occasions I have alluded to it, and therefore it will not be necessary to say more on the subject.

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* MEDICAL GAZETTE, vol. xviii. p. 246.

CLINICAL LECTURES

ON

DISEASES OF THE SKIN.

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Pityriasis Versicolor—Pityriasis Rubra—Lepra Vulgaris—Lepra Alphoides—Psoriasis Diffusa—Psoriasis Infantilis.

Pityriasis Versicolor.

THE patient, Elizabeth Gray, ætat. 28, has laboured under pityriasis versicolor, or variegated dandriff, since childhood. The disease is a chronic and non-contagious inflammatory affection of the skin, characterised by the evolution of coloured spots or patches, and by a scurfy roughness of the integuments, succeeded by a mealy or foliaceous desquamation. When the patient first presented herself, the disease exhibited an erythematous appearance, the eruption being present on all parts of the body, but more especially on the outer surface of the legs and arms. In this stage of the disease there was also violent pruritis; and if from any cause the eruption became accidentally exasperated, the heat of the surrounding integument was materially increased, and the soft parts in general seemed to suffer much from distension. After a few days the redness of the skin diminished in intensity, and soon entirely disappeared. If a dry cloth is now rubbed over the parts, numerous films of thin delicate cuticle come off, and these pellicles may be detached throughout the whole diseased surface, leaving the sound integument beneath them of a light rose colour; the exfoliated portions of cuticle being nearly transparent, and exhibiting the cutaneous lines and perforations in a distinct and beautiful manner.

With respect to the pathology of pityriasis, I am disposed to agree with Mr. Plumbe, that it generally occurs in individuals of delicate health and diminished energy of circulation. In this state of the system the cutaneous vessels partake of the general debility, which is increased by the distance of these vessels from the centre of the circulation, and the exposure of the diseased surface to vicissitudes of temperature: they become from these causes incapable of performing those functions upon which the formation of sound cuticle depends, and produce instead the imperfect and ill-formed substance before us.

In the case under consideration the state of the circulation, and the general debility of the patient, fully bear out these

views, the disease being obviously one of debility. During the first stage of the disease, when considerable irritation existed in the eruptions, we ordered the patient twice a week an emollient bath, formed by suspending half a pound of arrow-root in the ordinary warm water bath. She also took internally alterative doses of Plummer's pill and sulphate of magnesia. When the irritation subsided, and the desquamation became abundant, of a pale colour, and nearly confined to the arms, we ordered a topical application, in the form of the following lotion:—

℞ Acid. Muriat. ʒj.; Liq. Potass. ʒiij.; Aq. Distil. Oj. fiat lotio, to be used every night and morning.

We also gave her internally, muriatic acid, five drops, with twenty-five of tincture of gentian, three times a day. By these measures the general health has become invigorated, the tone of the cutaneous vessels has been restored, and the eruption has now disappeared.

Pityriasis Rubra.

The patient, Samuel Hall, ætat. 37, has been subject to this variety of dandriff twelve years. He describes his habit and condition to have been very weak and debilitated, and his mode of living irregular, at the time of the accession of the disease. The eruption appears on the arms, neck, chest, and abdomen; indeed, all parts of the body seem to suffer more or less from the disease. The cuticle is at first red and rough, but soon becomes scurfy and exfoliates, leaving a similar red cuticle beneath, which undergoes the same process, the scaliness increasing as the exfoliation proceeds.

Both these forms of dandriff appear to be identical with each other, and with the black dandriff observed in children born in India, and the blue dandriff described as prevailing in Mexico.

I directed the patient to use alternately the emollient bath and the sulphur bath, and to take the following decoction daily:

℞ Dec. Sarsæ. C. Oj.; Acid. Nitric. ʒj. M.

He has pursued this treatment for some weeks, and may be dismissed cured.

The only remaining variety of dandriff is that which affects the scalp, pityriasis capitis. It is most common to infants, and appears in the form of a colourless scurf about the top of the forehead and temples, and in that of separate semi-transparent scales on the occiput: in this form it usually yields to ablution with warm water and soap, or to an alkaline or spirituous lotion. Strong sedative applications are objectionable; but I have used the following lotion, both with infants and persons of advanced age, with the best effect:—

℞ Zinc. Acetat. ʒss.; Aquæ Rosæ, Sp. Tenuior. aa. ℥iv. M. ft. lotio.

In children exposed to much neglect the disease occasionally assumes an irritable porrigonous character, attended with a fluid secretion and scabbing; and in this case a return to cleanliness, and attention to the patient's habits and general health, is absolutely necessary. The local treatment which I adopt in such cases consists in the use of an occasional poultice to remove irritation, and the subsequent application of zinc ointment. I have always found these means sufficient for the removal of the disease.

Lepra Vulgaris.

W. Hambrook, ætat. 36, has laboured under lepra vulgaris more than twenty years. He became a patient at the Infirmary two months ago. At this period the leprous eruption extended over a great portion of the face, head, trunk, and extremities; the eruptions being confluent, and forming a sort of shield of scales, in which nearly the whole body became ultimately enveloped. The patches of eruption were of an oval or circular form, and covered with shining scales. After shedding their scales, the eruptions enlarge in a rapid manner, but still preserve a circular shape; they are bounded by a rosy elevated margin, which makes the centre of each patch appear somewhat depressed; the enlarged eruptions become quickly covered with dry, glistening, and greyish-coloured squamæ; the scales on the scalp being more yellow and furfuraceous than those upon other parts of the body.

With respect to alterations of structure existing in this disease, it has been supposed that the vessels secreting the epidermis labour under a chronic irritation, which causes the production of this substance to be more copious than natural; and certainly the other tissues entering into the formation of the skin do not appear to be alike affected in this disease. The circular arrangement of the squamæ is supposed to be the natural consequence of their development in the character of round elevations; the inflammation, in spreading, still retaining its primary form. M. Rayer has also ascertained that the papillæ are more largely developed on the leprous patches than on the healthy skin.

The patient, Hambrook, is a man of a full and plethoric habit. On his first reception into the Infirmary he was bled to 12 oz. and treated with six drops of liq.

arsenicalis twice a-day, in decoct. dulcamaræ: he was also ordered to take alternate baths of sulphur and soda twice a week. He has persisted in this treatment for two months, but was unable to increase the dose of the arsenical solution, in consequence of the disturbance which it occasioned to the functions of digestion. The orbicular patches have successively disappeared, the cure proceeding from the centre of the eruption and extending towards the circumference. After the scales have disappeared, the skin beneath them acquires a greyish tint, with a shade of yellow. As the cure progresses the patches are narrowed from within outwards, the circle is broken up, and the spots have now entirely disappeared, leaving the integuments free from any trace of the eruption.

Lepra Alphoides.

I may as well take this opportunity of stating that the case of white lepra, to which I formerly directed your attention, and whose progress I recommended you to watch, is proceeding rapidly, under similar treatment, to a favourable termination. The disease, as you are aware, differs from lepra vulgaris only in the smaller size of the patches and their non-confluent character; the pathology and treatment are precisely the same, and I agree with those nosologists who think that the separation of diseases so clearly identical into different varieties, is calculated, by the multiplication of useless names, to embarrass rather than simplify the science.

Psoriasis.

This disease is a chronic inflammation of the skin, appearing first in the form of flat elevations, of a red colour (*Psoriasis guttata*), which change into squamous patches, of various sizes, with irregular edges, very slightly raised at the margin, and not depressed in the centre (*Psoriasis diffusa.*)

The patient, Eliza Craneey, ætat. 30, has laboured under diffused or confluent psoriasis nine months. In its early stage the disease was accompanied with considerable irritation and pruritis, the eruptions being diffused in broad patches, many inches in circumference, over the arms, legs, and neck: the chief patch of eruption appeared at the bend of the fore-arm, in the shape of numerous minute elevations, which speedily desquamated, leaving beneath them a red inflamed skin; other scales detached themselves in rapid succession, and the eruption quickly extended itself over at least a third of the whole arm, being accompanied with fissures and rhagades, which bleed in the neighbourhood of the joint upon violent flexion or extension of the limb.

The patient imputes the accession of this disease to violent cold, caught when she was labouring under considerable gastric irritation. The disease is one of the most common affections of the skin, a large portion of the cases received into this Infirmary being varieties of psoriasis. In the confluent form, it shews itself chiefly among adults between the ages of 25 and 30, and especially among women of a nervous and sanguine temperament—such as the case under consideration. The seasons also have a marked influence on the production of this disease, it being usually developed in the beginning of the spring. In this patient the disease first shewed itself about February or March last. Irritation of all kinds applied to the skin, directly or indirectly, may prove the exciting cause of psoriasis. In one case which fell under my notice, the disease followed the application of a common blister.

The influence of various trades or professions upon the disease is confined to certain local varieties. Thus we have at present on the books of the Infirmary, a baker, a grocer, a confectioner, and a painter, in whom the exciting causes appear to have been the irritating substances which they employ in their different avocations, and a certain degree of inattention to cleanliness. In these cases the eruption is usually confined to the palms of the hands (*Psoriasis palmaris*), and the outer surface of the fore arm and hand. The disease also occasionally attacks the lips (*Psoriasis labialis*), as we see in the present case; the perineum, as in the case of an elderly woman who is a patient of the Infirmary; and the scrotum (*P. scrotalis*), as I have just had an opportunity of witnessing in the case of a private patient, who consulted me at the recommendation of his family medical attendant. I may as well mention here, that the two last varieties yielded in about a fortnight to the local application of sulphur vapour, and the internal use of Plummer's pill and sulphate of magnesia. There is also a variety which appears chiefly on the neck or face in the form of tortuous or vermicular stripes (*P. gyrata*), and a more obstinate form (*P. inveterata*), which differs from confluent psoriasis only in the severity of its symptoms, and which is occasionally a sequel to prurigo senilis. There are two other varieties, which I have purposely omitted in this enumeration, viz. washerwoman's scall (*P. lotorum*), and the psoriasis of young children (*P. infantilis*), which I shall separately consider.

The diseases with which psoriasis may be confounded are lepra and scaly syphilis. The patches of psoriasis may be distinguished from lepra by the circumstance

of the edges of the former not being raised, or the centre depressed, by the irregular form of the eruptions, and by the less abundant production of scales. They may likewise be distinguished from the syphilitic scaly patches by the coppery or livid hue of the latter, and the absence of true scales. The syphilitic eruptions also get well from the circumference to the centre, which is not the case with the patches of psoriasis. The former are also usually accompanied with other syphilitic symptoms, such as inflammation of the pharynx or conjunctiva, nodes, and nocturnal pains.

In the case of Crancey, the highly inflamed condition of the integuments rendered venesection necessary upon her first application. The secretions were disordered, and the patient complained of acidity, which we endeavoured to remove by repeated doses of hyd. c. cret. at night, with a saline aperient in the morning; she also took the following mixture internally:—

℞ Liq. Potass, ʒij.; Mist. Amygd. Amar. ℥viij. M. fiat Mist. Capt. Coch. iij. bis die.

And she had recourse to a gelatino-sulphurous bath twice a week.

The patient has persisted in this treatment for two months. The squamous inflammation has now entirely disappeared, though the skin at the bend of the arm still presents a reddish stain, by which you may judge of the extent of surface originally diseased.

A case very analogous to the one detailed is that of Hannah White, ætat. 28. The patches of eruption in this patient were not quite so large as those of Crancey, but the inflamed parts, especially at the bend of the arm, were affected with a violent pruritus, and intense feeling of heat, which was greater after meals and during the night. The patches were also traversed by numerous cracks, which rendered them exceedingly painful to the touch. The same treatment was pursued in this as the preceding case, with the addition of a few leeches to the margin of the eruption. The patient was cured in six weeks, and left London for Wales this morning.

I have found the liquor potass. a valuable internal remedy in all the varieties of psoriasis, in conjunction with the sulphur baths. Occasionally I have substituted for it the hydriodate of potash, with very good effect; and when these have failed, the liq. arsenicalis. I usually begin by giving this last remedy in doses of five drops twice a day, either in the decoction of dulcamara or sarsaparilla. If this dose does not have any effect upon the disease, I increase it cautiously; and have in one case given as much as 15 drops three times a day, with the happiest effects as regards the disease, and without exciting any untoward symptoms.

In a case of psoriasis treated some years ago by my learned colleague, Mr. Gaskoin, the use of the liq. arsenicalis was carried gradually to the extent of seventy-four drops daily; and though it produced some constitutional disturbance, the disease was ultimately removed by this plan of treatment. I mention these facts now, because I believe the medicine is not always administered in sufficient doses: I am aware that erysipelas has sometimes accompanied the use of the arsenical solution, and I cannot insist too strongly upon the necessity which exists of watching the symptoms, and abstaining from the use of the medicine, if nausea, colicky pains, or other proofs of constitutional disturbance, should make their appearance.

Psoriasis Infantilis.

This form of psoriasis has been so often mistaken for the consequences of a venereal taint, and with such serious results both as regards the parent and the child, as to deserve a separate and very careful consideration. It usually attacks children from birth to three years of age.

The child, George Rutelege, ætat. 3 years, has been a patient at the Infirmary about ten days. Previous to his being brought to this institution, he was a patient at the London Hospital. When presented here, the cheeks, forehead, scalp, abdomen, back, and nates, were covered with red patches of inflammation; the eyes also exhibited traces of inflammation, and the mucous membrane of the nose was so inflamed and thickened as to render respiration difficult. The eruptions were also covered with horny scales, smooth and glossy to the eye, but which soon became traversed by numerous cracks and fissures, which in the neighbourhood of the joints and on the scalp emit a bloody discharge, the constitutional disturbance being very great, and also productive of much emaciation.

Upon examination, no single collateral circumstance could be found to lead to the suspicion of the syphilitic origin of this disease, though the child partook, with other members of his family, of a loose lymphatic diathesis, increased, no doubt, by the mode of living, and by the privations and exposure to which persons in his condition of life are liable.

The treatment adopted in this case consisted of alterative doses of hyd. c. creta, and pulv. rhei., together with a soda bath every night, which successively removed the hard scales, at the same time that it succeeded in allaying the general irrita-

tion of the skin. A more generous diet was also recommended, together with strict attention to cleanliness. By these means the skin of the body has been restored to its natural condition, leaving no visible trace of squamous inflammation behind. The scalp, however, still retains something of its glossy and shining appearance; but the solid elevations at its summit have disappeared, and the integument is now rapidly resuming its healthy state.

SKETCH

OF

THE COMPARATIVE ANATOMY OF THE NERVOUS SYSTEM;

With Remarks on its Development in the Human Embryo.

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The importance of a correct acquaintance with the nervous system must be at once evident, when we reflect how vague and unsettled are our ideas respecting the functions of many of its parts, the relations of those parts to each other, and the analogies which they maintain in differently organized animal beings.

In the following paper it is my purpose to point out the chief peculiarities belonging to that system, founded on observations for the most part original. But before entering into detail, I must observe that the anatomy of the nervous system is so intimately mixed up with that of the osseous system, and the mode of development of both is so beautifully explained by the researches and laws of philosophical anatomy, that I am induced, by way of introduction, to offer a brief outline of the principles of the latter science, which has as yet but little attracted the notice of English anatomists.

Outline of Philosophical or Transcendental Anatomy.

The objects and meaning of philosophical or transcendental anatomy are, to prove that all the varied and complicated structural forms met with in the different classes of the animal kingdom are but modifications of one simple and primary form, and that the whole osseous system, whether it exists in a simple or in a highly complicated state, is but the repetition of a simple vertebra.

The first ideas respecting this subject appear to have been maintained by Gœthe, in 1796*. Oken, in 1807, proclaimed the existence of cranial vertebræ†; and in the same year Geoffroy St. Hilaire published some papers on the determination of certain parts of the skeleton of fishes‡; and in 1812 and 1822 this author published two volumes on philosophical anatomy§. But the most elaborate work on the subject is that by Professor Carus‖, a work replete with elaborate and scientific research.

It is M. Carus' proposition and principle, that the most simple and primary form of all organization is the spherical; he instances the globule of mercury and of blood, the heavenly bodies, the globular infusoria. A contraction of this sphere, a conversion of it, indeed, into bodies terminated by straight lines, as dodecahedrons and hexahedrons, expresses the suspension or death of the interior vital action, and determines the formation of *inorganic* matter, and of mineral or crystalline bodies. An expansion of this sphere, an enlargement of it externally, or a multiplication of its centre or periphery, expresses an increase of the individual vital action, and determines the formation of *organic* matter, or of individual living bodies, animal or vegetable.

The next point to be observed is, that the primary mass of all organized matter is the fluid; the primary animal mass is albumen, the substance of the egg; and the primary mass of the solidified limit of the animal organismus, or, in other words, of the skeleton, is earthy, particularly lime. From the primary animal mass just mentioned there proceed two different animal substances, the blood and the nervous matter, both granular, and essentially necessary to each other: the former is the representative of plurality of the vegetable sphere, and is shewn by M. Serres¶ greatly to influence the development of the latter, which is the representative of unity, or of the animal

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* Researches in Comparative Osteology, 1796.

† Programm ueber die Bedeutung der Schœdelknochen. Bamberg, 1807.

‡ Annales du Museum d'Histoire Naturelle, vols. ix. and x.

§ Philosophie anatomique. Paris; vol. i. 1818; vol. ii. 1822.

‖ Recherches d'Anatomie Philosophique ou Transcendentale; contained in the third volume of his Traité Elémentaire d'Anatomie Comparée. Paris, 1835.

¶ Anatomie Comparée du Cerveau.

sphere; its direction is fixed, and it has for its character the production of the radiating nervous filament, and that of the nervous ganglion representing the centre. Both are limited as to external boundary; that of the nervous system being neurilema, cartilage, or bone, according as the system itself is at a greater or less degree of development. The form, then, of this covering of the nervous matter depending on the state of development of the nervous system, and these different structures being the true skeleton of the animal, it results that the construction of this latter must rest always on the particular characters of the former; and this is beautifully demonstrated by Carus, in the work already mentioned.

It may be considered as a fundamental law, that all organized bodies begin by the most simple form (the sphere), and that their development, or evolution, results from differences which are themselves occasioned by the multiplication or repetition of the primary unity. Let us, then, see what are the forms that can mathematically result from this multiplication or repetition, whether of the whole sphere, its centre, or its surface. 1. The forms resulting from a modification of the sphere are the double cone and the cylinder; that is to say, that the superficial matter contained in one sphere of given dimensions is precisely equal to that contained in one double cone of certain dimensions; so that one form may resolve itself into the other without the slightest excess or redundancy of matter, merely by the difference of the internal plastic force. This geometry assures us of, and the importance of the law will be at once evident when it is stated that the primary forms of all the solid parts of the animal body, the bones, are absolutely those of the double cone and cylinder, under certain modifications. 2. What are the fundamental organic forms produced by the multiplication of the centre and of the surface of the sphere? The first form is that of a series of segments of spheres, interlaced one within the other, analogous to the segments of the Articulata, and which would be produced by developing other spheres of the same size on the central axis of the primary one, each having, of course, a new and particular centre. The second form is that where new spheres are developed, as just described, but are either of greater or less size than the generative sphere, giving rise to an ellipsis, or a cylinder terminated at each end by a hemisphere. Now these spheres being considered as hollow ones, united so that all mark of separation is effaced, there can remain from all the median ones but a middle zone, a ring, only visible on the exterior, whose place is determined by the point where one hollow sphere interlaces with another: each sphere, then, would have the form of a ring.

It is important to bear in mind these forms of hollow sphere, ellipsis, ring, &c. as they are the true prototypes of many of the softer parts of the animal body, as the viscera, the nervous ganglions, &c. Innumerable examples, also, of these simple primary forms might be adduced from the harder parts of the bodies of animals: the rays of an asterias, and the segments of the Articulata, are a series of hollow rings; even in the Vertebrata there are segments of the body, and there each ring (compacted together, however, as a whole) would be formed of a vertebra, two ribs with their cartilages, and a portion of the sternum. The human cranium offers another example, which is composed of a certain number of vertebræ, formed as segments of a hollow sphere from the simple vesicle by which the brain, as well as the cranium itself, begins its career of development. This simple column of primary spheres may change the direction of its axis, and may continue to be developed in three directions at once. The multiplication of the sphere may also proceed from the periphery. Secondary and tertiary spheres may also be developed, subject to a variety of modifications, and regulated in their development by strict geometrical principles.

These few remarks may serve to point out the chief features of the transcendental system, and at the same time to shew the importance and interest of this branch of anatomical investigation.

System of Classification.

Dr. Virey, a French physician and naturalist, long since assumed the nervous system as his basis in forming an arrangement of the different classes of animals *. Cuvier did the same, to a certain extent †. Carus, in his Anatomie Comparée, classes animals accord-

* Dictionnaire Nouveau d'Histoire Naturelle.
† Anatomie Comparée.

ing to the characters and state of development of their nervous system, and arranges them in circular groups; a plan which has been followed in this country, with some success, by Mr. Mac Leay*, who considers "that all natural groups, whether kingdoms or any subdivisions of them, return into themselves; a distribution which he expresses by circles, each circle being formed precisely of five groups; larger groups being connected by the intervention of lesser groups, which he denominates osculant." Time and patient investigation only can prove whether these theories be true; the arrangement is certainly one which (as Kirby and Spence observe*) nearly approximates to what we see in nature, and I have myself no doubt that (under certain modifications) it will be found eventually the most correct. Annexed is a tabular view of one which I have found to be the most practical and correct; it accords very nearly with that given by Dr. Grant and Professor Carus:—

A SYSTEMATIC CLASSIFICATION OF THE ANIMAL KINGDOM FOUNDED ON THE DEGREE OF DEVELOPMENT OF THE NERVOUS SYSTEM.

Group	Classes	Group	Classes
GROUP 1. *Vertebrata*	Mammalia. Aves. Reptilia. Amphibia. Pisces.	GROUP 3. *Mollusca*	Cephalopoda. Pteropoda. Crepidopoda. Gasteropoda. Conchifera. Tunicata.
GROUP 2. *Articulata*	Insecta. Arachnida. Myriapoda. Crustacea. Annelida. Cirrhopoda. Rotifera. Entozoa.	GROUP 4. *Radiata*	Echinodermata.
		GROUP 5. *Acrita*	Acalepha (provisional). Polypiphera. Porifera. Polygastrica.

Having made these preliminary statements, I shall pass now to the more immediate object of this paper.

The remarks already made would lead us to the conclusion that all animated nature has a certain definite point at which it commences—that there is a sort of central commencing point which expresses the primarily created form of organic and inorganic matter; that form being a sphere, and that sphere being capable of conversion into other forms characteristic of the mineral, the vegetable, and the animal kingdoms. Whether this position be true or false, we cannot but be impressed with the following facts:—

1. That there is a great similarity both in the external form and in the internal structure of the first specks of development of all grades and states of organized matter.

2. That the lowest permanent forms of these states of organized matter bear a great resemblance to each other.

3. That the highest forms of organic matter commence their career of development by the simplest and primary form—that, at the same time, agreeing greatly in character with the permanent condition and form of the lowest organized matter.

Man, therefore, the essence and perfection of organic life, must have a like beginning; there must be a time when he exists only as a globule of elementary matter. Man and the monad must have a similar starting-point; the development of the one, however, is almost immediately arrested; the development of the other proceeds rapidly in its career, and arrives at last at what we conceive to be the type and essence of animal perfection.

Let us now consider what we should conceive to be the earliest state of development of the nervous system—what shape, and of what texture, should we expect to find the most lowly organized animal forms? We should certainly imagine that the form must be more or less approaching the spherical—that the texture must be more or less homogeneous—a mass of globules indeed; the

* Horæ Entomologicæ; or Essays on the Annulose Animals.

* Introduction to Entomology, vol. iv.

permanent form of all their organs and systems (excepting, perhaps, the digestive), and amongst others that of the nervous, with which we are now exclusively occupied, the embryo state of those organs and systems in the higher animals. Let us see if this be the case; let us see if there be any animals in whom the nervous does not yet appear as a particular system, or in whom it cannot be distinguished from the primary animal mass. Let us see if, when in this state, it agree in character with its embryo and primary form in higher animals, or in the human species.

ACRITA.—The class acrita consists of animals whose very characteristic is, that in them the nervous system is molecular, consisting of globules diffused through the cellular tissue of their bodies. Amongst them we distinguish, first, the *Polygastrica*, which are minute microscopic animals, furnished with numerous digestive cavities, in whom no nervous filaments have as yet been traced; still they, many of them, possess eyes, and the sense of taste, and perform their various motions in the different fluids as if under the well-directed guidance of nervous sensibility. These animals appear as a punctiform homogeneous mass, in which a nervous system does not as yet exist in a distinct form: nervous globules are, however, every where diffused through the cellular tissue of their body. These latter remarks will equally apply to the next class — the *Porifera;* of which the *spongia officinalis* may be cited as an example. Its texture is soft and gelatinous, and is almost made up, as it were, of nervous and muscular globules.

Polypiphera.—No nervous filaments have been discovered, or described, in any of the various forms and sizes of polypipherous animals, excepting in the genus actinia, respecting which a doubt, almost amounting to a denial of the statement, exists. I will offer what evidence I am acquainted with, for and against it. The actinia may be considered as an isolated polypus; it has no calcareous skeleton, and fixes itself to the rocks by its fleshy base. Spix, a German anatomist of high repute, gave plates of its nervous system thirty years ago, and described it as consisting of filaments with minute ganglia, surrounding the fleshy base just mentioned, from which were given off nerves to the different parts. In a recent conversation with Mr. Bell on this subject, he informed me that he had himself dissected nearly a hundred of these actiniæ, without being able to detect any nervous filaments; and further, that Cuvier had told him that he felt inclined to doubt the accuracy of the statement made by Spix, having also been unable to make out any traces of a nervous system. These animals I have found, however, extremely sensible to the touch, when expanded, and to the light when exposed to its influence. This would indicate some degree of nervous sensibility, but which, in the present state of our knowledge, we can only conceive to be afforded by nervous globules distributed in their homogeneous structure similar to the preceding classes. In the next class, the *Acalepha*, which consists of gelatinous marine animals, neither Trembley *, Gœde †, Carus ‡, and other anatomists, have been able to detect any distinct nervous filaments. Dr. Grant §, however, has discovered what he considers a nervous system in the *Beroë pileus*, and describes it as "consisting of a double circular nervous filament, situated around the oral extremity of the body, which sends off minute filaments in each of the spaces between the eight longitudinal bands of ciliæ; these eight points, from which the longitudinal filaments come off, present minute ganglionic enlargements." It is proper to observe, that this statement has been recently refuted; and though they certainly appear to be under the guidance of nervous sensibility, I have myself at present every reason to suppose that their nervous system consists only of globules diffused in the gelatinous mass of their body.

These statements, then, would show that in these classes of animals the nervous does not yet exist as a particular system; that their shape is more or less spherical; that their texture is more or less homogeneous and pulpy.

Let us now turn to the consideration of the human ovum: that we know to consist (when first detected) of a thin membrane inclosing a quantity of transparent limpid fluid; it is of that form which has been presumed to be the

* Mémoires pour servir à l' histoire d'un genre de polypes d'eau douce, 1774.

† Beitræge zur Anatomie und Physiologie der Medusen, 1816.

‡ Anatomie Comparée, vol. i.

§ Lectures on Comparative Anatomy.

primary one of all organic matter—the spherical. In a little time the embryo is visible, as a speck, a globule; its texture is soft and homogeneous; no organs or systems are as yet discoverable. Dr. Blundell has in his museum a preparation of the human ovum, consisting of a delicate membranous cyst, in which is seen a little spot, not so big as a mustard seed—the embryo. And again: Sir E. Home, in describing the appearance of a very early human ovum *, says, "that it consisted of two membranes, which contained (besides a slimy fluid) two globules—the rudiments, probably, of the heart and brain." Even during the first month of human embryotic life, the minute researches of Tiedemann † record "that no organ is yet perceptible,—that the cephalic and cervical swellings are altogether transparent, and contain only a limpid fluid." The embryo state of the lower animals presents similar phenomena. I have had the opportunity of examining a very early embryo of the squirrel, only a line in length, and scarcely half a line in breadth, which was of an elongated spherical form, of an apparently homogeneous texture. The embryo of the common fowl, on the first and second days of incubation, I have found also to consist of a spherical globule or vesicle. Again: the ovum of the frog has a spherical form, and is of a homogeneous pulpy texture.

I have thus endeavoured to show that man and many of the lower animals begin their career of development by an albuminous globule, similar to the pulpy spherically-formed Acrita; that in their very early embryo state the nervous, equally as in these lowest animals, does not exist yet as a particular system; that it consists, as in them, probably only of globules diffused through their minute homogeneous mass.

Radiata.—In the next group of animals, the Radiata, nervous filaments (formed by a longitudinally-arranged series of nervous globules), are for the first time discoverable; and this being the case, it is important that we should notice what form and direction they assume: it is that of a ray and a central point, or a nerve and a ganglion; of these several are developed; and as it is the very essence of a nervous system that it should consist of ganglions united and not separated, threads of communication are developed, called commissures, and a ganglionic system is formed, the inferiority of which is expressed in the Echinodermata by the perfect equality of all the ganglions: these ganglions are also situated at an equal distance from each other, and are determined in their number and origin by the general organization of the animals: thus we shall find that in the Asterias, or star-fish, with five rays, there are five ganglions (with radiating nerves) sending off commissures, which, inasmuch as they are situated on a spherical surface, unite them in the form of a ring. This ring we may call the primary nervous ring; it is that form which, according to the laws of philosophical anatomy, we shall hereafter recognize as the essential base of even the most varied forms of a nervous system. It is only in the genus Asterias that a nervous system has been distinctly seen; and we are indebted to Tiedemann for the first description of it, in his Monograph of the Echinodermata *. I have myself been able to demonstrate it in a small species of this genus, where it consisted of a circular cord around the mouth, from which proceeded a filament along each ray, having, at its origin, a minute ganglionic enlargement; the nervous ring rested upon the extreme edge of the central aperture in the calcareous frame-work of the body, and the filaments rested on the inferior surface of the rays, concealed by and at the base of the tubular feet and suckers. Two other filaments, according to Tiedemann †, are given off from each of these ganglionic enlargements, which are much shorter than those just described. In the Echinus no nervous filaments have hitherto been discovered; but in the genus Holothuria, Cuvier observes, "that there appears to be a very attenuated nervous cord around the œsophagus ‡." This Delle Chiaje denies entirely §. Dr. Grant, however, describes their nervous system to exist in the form of a collar around the anterior part of the body,

* Philosophical Transactions for 1817.
† Anatomy of the Fœtal Brain.

* Anatomie der Rœhrenholothurie, &c. 1820.
† Loc. cit.
‡ Règne Animal, vol. 4.
§ Memoir sull'Asteria, &c. 1823.

giving off longitudinal filaments *. I have myself examined carefully a species of Holothuria, but have not been able to detect any traces of nervous filaments.

MOLLUSCA.—Let us now turn to the anatomical investigation of the nervous system of the molluscous classes, and see if it agree in character with the statements already made.

Tunicata.—Many of the Tunicata, the lowest of them, approach in character the Zoophytes; for no particular medullary mass constituting a nervous system is discoverable in the soft texture of their bodies. Here, then, we have, as it were, the commencement of another large group of animals, which cannot be said to glide insensibly into the one we have just left, though it has of course strong relations and affinities to it. The most rational view, I think, of the connexion of these two groups, would be that expressed by the interlacing of two spheres. In these tunicated animals of Lamark, or naked Acephalous Mollusca of Cuvier, a true nervous system has as yet been shown to exist in but few of the genera, principally in the form of Ascidiæ. In the Ascidia mammillata, Cuvier describes and figures it † as consisting of a single oblong ganglion, situated near the anal orifice of the animal, and between that and the mouth; from this ganglion branches are given off, some of which, passing to the œsophagus, encompass it in the form of a ring. In some species a separate ganglion is formed above the respiratory orifice by the union of these filaments; and in the Ascidia gelatinosa, Meckel has described three ganglia, situated between the branchial sac and the stomach ‡. This complication of form leads us at once, by strict analogies, to the next class, the *Conchifera*, or testaceous mollusca of Cuvier, where the nervous system consists of three pair of ganglia, connected by double longitudinal sub-abdominal nervous columns. In the Mytilus edulis, or common muscle, I found a pair of ganglia, situated on the lower and lateral parts of the mouth, connected above and below by nervous filaments, thus forming a ring, which encompassed the œsophagus, and which we at once recognize as the *primary nervous ring*. These ganglia were of a yellowish colour, and gave off filaments to supply the anterior parts of the body. On either side of the base of the foot was situated another ganglion, connected to the former by longitudinal nervous columns. At the posterior part of the body were two more ganglia, connected to the others as before described, from which were continued two nerves, that passed to be distributed on the mantle.

Gasteropoda.—In the next class, the Gasteropoda, the nervous system acquires a greater degree of concentration in the head. The oral primary nervous ring is stronger, and in most of the species develops a ganglion, situated above the œsophagus, and consequently on the dorsal aspect of the animal. In the species Patella (limpet) I found a small ganglion, situated on either side of the œsophagus, which gave off filaments to the eyes and tentacula: they were connected with each other by a simple nervous band, consequently there was no ganglion developed above the œsophagus. From the posterior part of these lateral ganglia there passed backwards two nerves, which gradually converging, united to form a large ganglion, situated below the œsophagus in the median line, from which were given off nerves to the viscera, the fleshy foot, and the circular muscle and mantle. In the Buccinum undatum (whelk) I found the nervous ring but slender on the superior part of the œsophagus, and no ganglion developed; there was, however, a large ganglion situated below the œsophagus, from which nerves issued in all directions to supply the neighbouring parts. In the Aplysia there are in all five ganglia, according to Cuvier *, one of which is situated in the abdomen, and may be considered as a sympathetic ganglion; it distributes nerves to the neighbouring viscera. Of the other ganglia, one is situated below, one above, and one on either side of the œsophagus. In the Helix pomatia and the Limax ater (snail and slug), the oral nervous ring developed a ganglion on the dorsal aspect of the animal, above as well as below the œsophagus, but the latter was the largest. From the for-

* Lectures on Comparative Anatomy.
† Anatomie des Mollusques.
‡ Schalk: De ascidiarum structura, 1814.

* Anatomie des Mollusques.

mer were given off nerves to the eyes, the mouth, the tentacula, and the organs of generation; from the latter were given off nerves to the neighbouring viscera and the muscular fibres of the foot. In the slug there passed off from this ganglion two long filaments, from which were given off nerves to supply the muscular foot and the external tunics. Again, in the Doris, there is a ganglion, developed above the œsophagus, which is of immense size compared to the two small ones which are below it.

Pteropoda.— In the Pteropoda, the nervous system presents the same general characters. In the Clio borealis, according to Cuvier*, there are four œsophageal ganglia, three above and one below, and the œsophagus is twice surrounded by a nervous ring.

Cephalopoda.—In the Cephalopoda, the highest of the Mollusca, the oral primary nervous ring develops a large ganglion above the œsophagus, a complete lobed mass or brain, which differs from all the other classes in being situated in a cartilaginous case, an organized cranial cavity; from it issue the nerves, and there are no other ganglia developed on the primary nervous ring. In the Sepia officinalis I found a concentrated lobate nervous mass, situated above the œsophagus, and contained in a rudimentary cranial cavity —a cartilaginous case. From the Sepia being in a bad state, I was unable to trace any of the nerves; but Cuvier describes the following as having their origin from this nervous centre:—Two nerves to the muscles of the mouth and lips; one nerve on each side, passing to the lateral ganglia of the mouth; a single short filament, which joins a large ganglion produced by the expansion of a large nerve arising from the posterior part of the cerebral ganglion,—from it arise the four nerves, passing to the feet; a large band arising from each side to the posterior part of the cerebral ganglion, which, uniting with its fellow, forms the œsophageal or primary nervous ring; a large nerve, the optic, arising near the origin of this band, which, having penetrated the orbit, swells immediately into a large ganglion. Besides these nerves, there are others supplying the viscera.

* Op. cit.

On reflecting for a moment on these statements of the nervous system in the the Mollusca, we find that the lowest of them, the Tunicata, approach very much the character of the lowest of the Acrita, in the absence of a true nervous system; that where one is discoverable, it is very simple, consisting only of a small ganglion situated between the mouth and anus, and of filaments, forming rings, directed towards those apertures. We also find that in the Conchifera, the next class, the primary nervous ring of the Asterias becomes more complicated in itself. There is one ganglion which predominates in size over the rest; it is situated below the œsophagus, and will be hereafter called the *sub-œsophageal* ganglion. But it is not until we enter the next class, the Gasteropoda, that we find the primary nervous ring developing a ganglion on the dorsal aspect of the animal: in them we find that to be the case; and this ganglion, as yet small, not yet preponderating in size over the inferior ganglion, will in future be called the supra-œsophageal or cerebral ganglion. This, then, is the first appearance of a medullary mass corresponding to a brain; and from it arise the optic nerves, already of large size. It must therefore be considered as analogous to the tub. quadrigemina of the higher animals, and is indeed the first lineament of that cerebral mass which we shall trace through successive complications to the perfect brain of the human species. In fact, in the Cephalopoda, the highest of the Mollusca, we find this cerebral ganglion divided into anterior and posterior lobes, similar to the tub. quadrigemina of the Mammalia; it is of much greater relative size than the lateral or inferior ganglia developed on the primary nervous ring, which, indeed, have here almost entirely disappeared, and have given place to simple largely-developed commissures. Here, then, we have arrived at the highest degree of complication and development of the simple primary nervous ring; and in the next group, the Articulata, we shall find this same highly-developed ring multiplied several times.

[To be continued.]

CASE OF MALIGNANT CHOLERA,

SUCCESSFULLY TREATED.

To the Editor of the Medical Gazette.

SIR,

A CASE of Asiatic cholera being happily now but of rare occurrence, I here inclose a full account of one which I have lately attended, with the desire that, if you think proper, it may be published in the pages of your useful journal.

William Watkins, residing near the Elephant and Castle, Newington, ætatis 51, a blacksmith, of nervous temperament, and accustomed to drink large quantities of ale and porter, was seized about the 16th of August, 1836, with purging; of this he took no notice, but if any thing, drank rather harder on account of it, in order, as he said, to carry it off. He had been very sick in the morning for some time past, with loss of appetite, and general debility. He continued much the same till Monday night, August the 22d, 10 o'clock, when he was suddenly seized with the following symptoms, which continuing unabated, I was requested to see him at 12 o'clock, when his state was as follows:—

Pulse almost imperceptible; tongue cold and moist; skin cold, dry, and possessing little elasticity, and of a slight bluish tint, especially about the upper extremity; eyes sunk; violent vomiting, the vomited matter smelling of spirit and beer; bowels open more than 20 times within the last hour, the alvine excretion being like rice water, and void of smell; violent cramps along the leg and foot, occasionally extending to the thigh; also cramps in the hand.

V. S. ad ℥iv.

Blood very thick, as if partly congealed.

℞ Hydr. Subm. Pulv. opii. aa gr. iii. statim.

℞ Spt. Ammon. Arom. Tæ. Lavend. C. aa ʒss. Aq. Menth. Pip. ℥ss. semi quaq. hora sumenda.

Brandy ℥ss. in a little warm water was ordered to be given every half hour. It was particularly desired that nothing whatever, except what is prescribed above, should be given. Bottles of warm water to be applied to the feet.

Tuesday, 23d, 3 A. M.—Pulse more perceptible; skin warmer, with slight perspiration; tongue much the same; the purging has ceased; sickness not diminished; cramps just the same; has passed no urine since 9o'clock yesterday.

V. S. ad ℥viij.

The blood flowed more freely, and was not of so great a consistence.

℞ Calomel. Pulv. Opii, aa gr. ij. statim. Repet. Haustus.

Eight o'clock, A. M.—Pulse improving; in a good perspiration; tongue warm; bowels still continue quiet; sickness and cramps much the same; no urine has been passed; the patient feels no desire to micturate, and as there is no swelling in the hypogastric region, there is good reason for supposing that it is suppression of urine.

V. S. ad ℥xij.

Blood flowed much more freely, and is nearly of its natural state.

℞ Calomel. Pulv. Opii, aa gr. ij. statim. Pergat.

Ten o'clock, A. M.—Pulse quite free, and rising; the purging has not returned; the cramps are unabated, and thinking that the muscles had perhaps lost the support of the skin, (its elasticity being greatly diminished) I considered it advisable to imitate, if possible, its support to the parts beneath, by the application of rollers; bandaging was therefore applied from the foot to the knee: sickness still continues. To take the brandy every hour, and to continue the same medicine.

One o'clock, P. M.—Much better; the bowels are quiet; sickness just the same. No cramps since the rollers were applied; the urine still the same.

℞ Cal. Pulv. Opii. aa gr. j.; statim.

℞ Sodæ Carb. Syr. Croci, aa ʒi.; Aq. Puræ, ℥vj. Capt. Q. P. 2dis horis c. pulvere seq.

℞ Pulv. Acidi Tart. gr. xv.

To continue the brandy every 2 hours.

Ten o'clock, P. M.—Much better; all the symptoms better, except the state of the urine, which still continues the same; sickness is rather less.

℞ Cal. Pulv. Opii, aa gr. j. statim. Rept. medicina.

24th, 9 o'clock, P. M.—Has had a fæcal evacuation, and has passed a

small quantity of very high coloured urine; is free from cramp, but still has sickness. To continue the medicines three times a day.

The only symptom generally observed, and here wanting, was the peculiar change of the voice. The bandaging I have never heard of being applied before; and as it seemed to relieve the cramp in this case, I think it is worth being tried again.—I am, sir,

Your obedient humble servant,

WILLIAM GALE.

15, Alfred-place, Southwark, Aug. 24, 1836.

ON THE TREATMENT

OF SOME

DISEASES OF THE BRAIN.

By JAMES C. PRICHARD, M.D. F.R.S.*

It has been said in former years that the art or practice of medicine has made much more rapid advances than the theory or science. It will hardly be disputed that the reverse of this observation holds good at the present time. For many years past, and especially since more precise investigation than was before pursued has been practised, by means of necroscopy, into the exact nature of organic changes, much accurate knowledge has been acquired, which is perhaps scarcely applicable to practical purposes.

There is no class of morbid affections to which this remark is more truly applicable than it is to diseases of the brain and its investing membranes. Nobody is less disposed than myself to estimate at a low rate the value of information obtained through the medium of researches similar to those of Sir Charles Bell, Drs. Abercrombie, Bright, Hodgkin, Sims, and others in this country; and of MM. Rostan, Foville, and many others on the continent. Knowledge of the precise nature of morbid changes has its value even in a practical point of view, if not by directing us always to remedies, at least by making us aware what we are to expect in particular cases, as the final results of disease, and as pointing out the limits of what is possible, or what ought to be attempted with reference to cure. Still we ought not to lose sight of the fact, that the recovery of patients, and not merely accurate pathology and diagnosis, is the ultimate object.

Perhaps all curative attempts in cases of disease affecting the brain resolve themselves into the modifications which medical art is capable of effecting in the vascular state of parts within the skull. We can promote by various means either fulness or inanition of the blood-vessels in the brain. Whether any thing beyond this is in our power is very uncertain. Besides general and local bleeding, all those means belong to the same class which act by refrigerating or heating the surfaces either of the head or of other parts. Refrigerant applications to the head have the effect of contracting the calibre of the arteries, and thereby diminishing the quantity of their contents. Pediluvia or other means of applying warmth to the lower extremities, produce a similar result, by augmenting the capacity of vessels remote from the head, and causing a greater quantity of blood to be determined into them. All these means plainly owe their efficacy to the modification which they bring about in the state of the vascular system of the brain. The only class of remedies respecting the *modus operandi* of which any question can be raised, are those which produce what is termed counter-irritation, and perhaps the doubt which exists in this instance arises from the obscurity of the subject. It is generally supposed, and perhaps correctly—at least it is very difficult to find any other hypothesis on the subject that is more probable—that the means of counter-irritation, such as rubefacients, vesicatories, and issues, produce their effect by lessening an hypoplethoric state of the vessels in internal parts, and that they bring this to pass by increasing the fulness of the vessels in surfaces to which they are immediately applied. These are facts which it is very difficult to reduce under this sort of explanation, as, for example, the relief obtained in cases of pneumonia or of bronchitis, by means of blisters applied to the parietes of the chest, there being in these instances no continuity of structure that might render the proposed explanation in some degree intelligible. On the

* Read at the British Association assembled last week at Bristol.

other hand, there is little doubt that such remedies are most efficacious when they are applied over surfaces nearly in juxta-position with the seat of disease; and this fact, if not called in question, goes far towards establishing the notion before alluded to as to their mode of operation.

As the means which are within our reach for treating disorders of the encephalon are so circumscribed, it appears so much the more necessary to endeavour to apply in the most efficacious manner such resources as we possess. I am not disposed to believe that any material improvement can be made in the ordinary rules for the use of evacuants, or measures of depletion, but I have no doubt that an important advantage may be gained by directing, in a particular manner, the mode of counter-irritation; and it is chiefly with the view of recommending this attempt that I have premised the foregoing remarks. Long experience has convinced me that the most efficacious way of applying counter-irritation in diseases of the brain is a method not often practised in other places, which has been for many years in almost constant use at the Bristol Infirmary.

An objection would probably arise in the minds of those who have not witnessed the application of this remedy, on account of its apparent severity. I hope to convince the medical section, and through this opportunity to make more general than would otherwise be done, the persuasion that the method of treatment to which I refer is by no means so painful or severe a remedy as it might be supposed to be, and that it greatly exceeds in efficacy all other means by which physicians have attempted to relieve diseases of the brain on a similar principle. The application I recommend is an issue, produced either by means of a soft caustic, or, what is much better, by an incision over the scalp. The incision is most frequently made in the direction of the sagittal suture, from the summit of the forehead to the occiput. The scalp is divided down to the pericranium. The incision, when that method is used, or the aperture left by the slough when caustic is employed, is kept open by the insertion of one or two, or in some instances three rows of peas. The discharge thus occasioned is considerable, and it obviously takes place from vessels which communicate very freely with the vessels of the encephalon. It would appear, *à priori*, very probable that an issue in this particular region, just over the sagittal suture, would have a greater effect on the state of the brain than in any other situation; and the result of very numerous trials has abundantly established the fact. I can venture to assert, that in all those cases of a cerebral disease in which counter-irritation is at all an available remedy, an issue of the kind now described is, next to bleeding, by far the most important of all the means which have yet been, or are likely to be discovered. The kinds of cerebral disease in which counter-irritation is beneficial, include, according to my experience, all those complaints which are accompanied by unusual stupor or diminished sensibility, excluding all affections attended by over-excitement, such as maniacal and hysterical diseases. In the latter, I believe all such measures to be for the most part highly injurious.

A case has lately occurred in my practice at the Bristol Infirmary which strongly exemplifies the efficacy of the treatment which I have recommended, and which I have fortunately an opportunity of bringing before the medical section in the most convincing way. A youth, about 18, came into the Infirmary labouring under complete amaurosis, which had been coming on gradually for a week or ten days before his admission. At that time it had become so complete that vision was entirely lost, and the pupils were totally insensible to light even when the rays of the sun were suffered to fall immediately into the open eyes. At first he was freely and repeatedly bled from the arm and temporal artery, had leeches applied to the scalp, blisters to the nape of the neck, and took calomel so as to render his gums sore. Finding that no effect whatever was produced by these measures, I gave up the expectation which I had at first entertained of his recovering sight, but was resolved to give the remedies a complete trial. I ordered him to be bled *ad deliquium.* This took place after a small quantity of blood had flowed from his arm while he was in an erect posture. After a few days, he was still perfectly dark; an incision was now made over the sagittal

suture, from the forehead to the occiput. It was filled with peas. In three or four days, precisely at the time when suppuration began to take place, the patient declared that he perceived light, but was scarcely believed, since the pupils were still widely dilated, and quite insensible to a strong light. In the course of a few days it was quite evident that he saw—he could tell when two or three fingers were held up. For some weeks the iris was still quite irritable, though vision had become in a great degreee restored.

The subsequent treatment of the case consisted chiefly in occasional leechings, purging, and low diet: when the issue healed, which was not till it had been kept open for some months, a seton in the neck was substituted: under this treatment the case has terminated in a complete recovery of the blessings of sight. I shall not detain the medical section longer upon this topic, but have procured the presence of the patient, and any gentleman who wishes to examine him, either as to the accuracy of what I have related, or to the degree of sufferings occasioned by the remedy, or to observe the slight vestiges which it has left, will have an opportunity.

ON THE

TREATMENT OF DISLOCATIONS.

CASE ILLUSTRATIVE.

To the Editor of the Medical Gazette.

Sir,

I am induced to forward you another case of treatment after dislocation, as it so fully bears out those principles which I have advocated in the 14th vol. of the Medical Gazette, p. 670.

June 15, 1836, Mrs. B——w, of middle stature, aged about 47 years, from George-street, Portman Square, was thrown out of a chaise, in the parish of Erith; in consequence of which, the ulna and radius of the right arm were dislocated outwards, so that both bones rested on the radial condyle of the humerus. After reducing the dislocation, which was attended with much difficulty, I ordered the limb to be steamed and fomented with hot water for one hour; after which, a large hot bread-and-water poultice was applied to the joint. The patient was then removed to Charlton (a distance of four miles), went to bed, and took a table-spoonful of castor-oil.

16th.—On examining the limb, there was much tumefaction.

> Continue the fomentation and poultice. The oil has acted freely. Diet to be spare; avoiding animal food and stimulants.

17th.—Continue the same means.

18th.—The swelling had greatly subsided; the extravasation extended from the shoulder to the wrist. On *gentle* rotation and flexion, no pain was produced in the joint.

> Ordered the arm to be rubbed twice a-day with an embrocation, composed of Liq. Ammon. ʒij. and Lin. Saponis. ℥x.; and a flannel roller applied, with moderate pressure, from the wrist to the insertion of the deltoid muscle. Increase the diet.

22d.—Much improved. No pain felt on making pressure over the region of the joint.

30th.—Able to use the arm, and carry it occasionally without the sling.

Mrs. B. returned to London, and became perfectly well, without any unfavourable symptom.

From the above statement it may be observed that no blood was lost, nor any cold application used. The treatment was simply keeping up the action of the exhalants and absorbents, so as to remove tumefaction and extravasation without lessening the vital properties pertaining to the low organized structures, as it is the ligamentous and tendinous structures which are injured in all dislocations.—I remain, sir,

Yours most respectfully,
John Grantham.

Crayford, Kent, Aug. 29, 1836.

REMARKABLE CASE OF TUMOR,

OCCURRING IN INDIAN PRACTICE.

[We extract the following case from the *India Journal of Medical Science*, Feb. 1836. A coloured lithograph accompanies the original, but we believe there will be no difficulty in understanding the description without its aid.]

About three months ago, I received through a learned and religious Brah-

min, a message from a Nipalese lady of high rank and caste, informing me that for nearly two years she had been suffering great physical inconvenience and mental distress, from the growth of a tumor originating above the right breast. That during the six months then passed, it had grown so rapidly, and assumed such an inconvenient shape and weight, as to deprive her of the power of locomotion, except by the assistance of her slaves. Her general health, too, was now suffering: she had consulted all the physicians of Nipal, used their remedies, and had submitted to the operation of charms and incantations, but all without avail or advantage. She had heard much of the skill of the English in the healing art, and seen several persons whose lives had been saved, and to whom health had been restored, through these benevolent and skilful efforts.

Her death was now inevitable, she said, unless I would come to her relief, and she was content to submit to an operation for the removal of her disease, or comply with whatever directions I might please to give her.

This was a most melancholy appeal, but much more so is the sequel. By dint of much interrogation regarding the origin and progress of the tumor, as well as its appearance and character, I concluded it to have been one of those large steatomatous growths which might be removed easily, and with success. I sent a message to the lady, expressive of my opinion, and of my willingness to remove the disease, if on personal examination I should find the same correct. She was rejoiced beyond measure, expressed her sincerest gratitude for my kindness, and promised to have all obstacles to my seeing her quickly removed; but it was easier said than done, for the stony heart finds an appropriate retreat in the breasts of our mountain chieftains. Circumstances over which I had no control, and which need not be mentioned here, prevented my affording the required aid: the tumor had then descended so low as to rest on the lady's couch when she sat upright. The continued pressure of its base on the ground, or bed, brought on ulcerations; fever ensued, and without hope of earthly relief, she fell a victim (in all probability) to the effects of national peculiarities or prejudices.

The sketch which accompanies this was taken carefully, as regards the tumor, and is, I believe, perfectly correct. The circumference of its neck where it originated between the clavicle and breast, measured nine inches. When the sufferer kept the sitting posture, its lower extremity rested on the couch, or on her feet (the Nipalese ladies sit cross-legged on the ground, or on low couches), and when she moved about the house, the tumor was carried in front of her by two female slaves, one on either side, their hands meeting under the tumor.

The right breast was not implicated in the mass. So soon as the tumor began to press on it, diminution of the gland commenced, and at the period of the disease here alluded to, it had entirely disappeared. The unfortunate subject of this note was only 28 years of age when she died; she was the mother of three children, and had been, ere sickness harassed her, more than ordinarily pretty.

I may mention, that the people of Nipal hold very high opinions of our skill in surgery, and that the poorer classes seek its aid on all possible occasions. For this fortunate circumstance we are in a great measure indebted to the reputation held by some of my predecessors, more especially Messrs. Macra and Bramley. That all classes do not seek it depends on other causes; but the fact of a Hindoo lady of rank and caste bringing herself to brave the force of custom, and seek the removal of all obstructions to gain this aid, speaks well for our nation in this foreign country, and illustrates the opinion held of our skill in an art scarcely practised by the natives of India.

I ought to have commenced my note by saying, that my purpose in troubling you with this case is to record the existence of this class of tumors among the diseases of Nipal; for, during four years' observation, and a good deal of medical practice among the poorer classes of the community, I have not met with any other class of these growths than glandular ones, save and except an anomalous one which appears on the ears of the women and girls especially, more rarely on those of the men. The thyroid glands swell to an enormous size, the parotids do the same, and the glandular affections of the scrofulous

habit are abundant enough; but steatomatous tumors, so common in our own country, have scarcely an existence, I believe, in this valley. I have visited every corner of it, and in all probability have seen nine-tenths of its population.

I am, yours truly,

A. CAMPBELL.

Nipal, Nov. 9, 1835.

ON KERATONYXIS.

REJOINDER TO MR. MIDDLEMORE *.

To the Editor of the Medical Gazette.

SIR,

I APPREHEND that if Mr. Middlemore was unable to comprehend my plain statement, that Professor Walther, in operating for cataract with the needle, "always prefers the keratonyxis (making the opening through the centre of the cornea) to the puncture of the sclerotic," the cause is more to be attributed to himself than to what he terms "the unprecision of the language with which I consented to decorate my opinions." I contented myself with barely stating the fact, without advancing any opinions of my own; and having in my reply shewn that Mr. Middlemore was wrong in his conclusions, both as to my having sent an erroneous account, and as to the results of Walther's method, I could draw no other inference from his letter than that he had seen too few operations of the kind to appreciate it properly,—without meaning by this to reflect upon Mr. Middlemore as an ophthalmic surgeon; as a person may have been long attached to an eye institution in England, and yet may not have had many opportunities of witnessing the operation of keratonyxis, especially in adults. Nor is there any thing in my letter which can be considered as an attempt to determine in a positive manner the superior merits of one operation over others, as I repeat I confined myself to the expression of facts, without expressing an opinion as to the merits or demerits of any operation. The allusion to the dogmatism of a travelled pedant, and the charge of a want of moderation and caution in language, in which Mr. Middlemore indulges, may well, therefore, be suffered to fall to the ground without further notice. While agreeing with Mr. Middlemore that the results derived from extensive practice, observation, and experience, are not to be at once superseded by the speculations of the theorist, I cannot but feel surprised that a person avowing such opinions should condemn in so sweeping a manner a mode of operating, of the advantage of which, on the human subject, he, by his own showing, knows so little practically. The needle used by M. Walther is straight, finer than a common couching needle, and slightly spear-shaped at the point, so as to make a very small aperture; and in the operations which I saw him perform, there was no undue injury inflicted on the cornea, nor any apparent difficulty in breaking up or depressing the lens,—though these inconveniences might very possibly occur in less skilful hands. In this operation but little of the aqueous humour escapes; and one advantage which it presents over others performed near the corneal margin is, that prolapsus of the iris is less likely to happen.

Many continental operators who advocate keratonyxis, do not, however, adopt Walther's method, but puncture the cornea at the distance of from half a line to a line from its centre. Valid objections may doubtless be raised against this operation, as against most others: it has, however, its peculiar advantages, which, without wishing to be considered as advocating its general superiority over other operations, I think, in some cases of cataract in adults, entitle it to a preference before either extraction or couching in the usual manner. Among the reasons given by those who prefer the keratonyxis for its more general adoption are—1. That it is easier of performance. 2. It does not injure some of the most important parts of the eye, as the sclerotic and choroid membranes, the ciliary circle, and the retina. 3. The cornea alone is wounded, and the wound is so trifling that it is seldom followed by any of the unfortunate consequences—as a high degree of inflammation, complete opacity of the cornea, a visible cicatrix, or prolapsus of the iris—which so frequently super-

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* The controversy must here cease.—ED. GAZ.

vene after extraction. 4. When the pupil has been previously sufficiently dilated by belladonna, there is less risk of wounding the iris than in ordinary couching, as the movements of the needle can be plainly observed through the cornea; and the capsule is more certainly lacerated anteriorly, whereas, in the operation through the sclerotic, this membrane is often perforated laterally, or the instrument passes into the substance of the cataract without touching its anterior part, a circumstance which renders the termination of the operation extremely difficult. One of Walther's reasons is, that he prefers attacking an enemy in front, to taking him in flank.—I am, sir,

Your obedient servant,

EDWIN LEE.

Grosvenor-Street West,
Aug. 29, 1836.

P.S.—I have this day seen at the Westminster Ophthalmic Hospital an old man, on whom Mr. Guthrie operated by keratonyxis a fortnight ago, in whose cornea there is not the slightest opacity or vestige of a cicatrix.

[In my last communication, on the Viennese Institutions, instead of "the examination fees are 200 florins," read, "the fees for education and examinations are 200 florins."]

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Researches into the Physical History of Mankind. By J. C. PRICHARD, M.D. F.R.S., &c. Third Edition; Vol. I.

THE appearance of a new edition of this admirable work must be greeted by all who can appreciate that interest, beyond romance, which attaches to the subject of which it treats. Next to those solemn inquiries which we are all bound to make into our spiritual and moral nature, speculations regarding the physical history of our race must be deemed worthy of our deepest attention. In such researches Dr. Prichard has long been looked to as a faithful and most learned guide; and he now presents himself to us thrice enriched with the spoils of time. Every source of information that seemed suited to his purpose appears to have been carefully examined: and of late years what invaluable stores have been thrown open by the enterprise of indefatigable explorers!

On the question of the unity or plurality of the original species of mankind, notwithstanding the numerous treatises that have of late years been published advocating an opposite doctrine, Dr. Prichard, while duly estimating the merits of each, has had no sufficient reason for altering his first views. Mr. Lawrence alone, he says, has maintained with him the *unity* of the primitive stock; while Rudolphi, Virey, Desmoulins, Bory de St. Vincent, Cuvier, and, as it would seem, Humboldt, have supported the position of an original diversity of races in mankind. Having alluded to this phalanx of philosophers, together with the several distinguished French navigators and naturalists who have had splendid opportunities of inquiry in their visits to the oceanic regions, and who all seem to concur in the position just stated, Dr. Prichard thus adverts to the present state of the question, as it remains between him and his opponents. "If the elucidation of doubts on subjects of physical inquiry were to be sought for in the preponderance of authorities, or the opinions of celebrated men, I am afraid that the problem which I have endeavoured to investigate would receive a different solution from that which I have obtained; but as the case is quite otherwise, I shall venture to put forth the present edition of my work, without much doubt that it will find readers disposed to admit the inferences which a long reflection on the facts therein developed, and on their relations, have led me to entertain."

We shall be anxious to see the work completed by the publication of the second volume: the plates are executed in a very beautiful style of lithographic embellishment.

The Dublin Journal of Medical Science. September 1836.

There are several excellent original papers in this number. Mr. Porter contributes an article on *Anomalous*

Affections of the Larynx requiring the operation of Tracheotomy. Dr. Lombard, of Geneva, in two letters to Dr. Graves, states his views of *Typhus Fever*, founded on *post-mortem appearances* noticed in Dublin, Paris, and Geneva. Drs. William and D. Griffin, of Limerick, have proposed a new set of *Medical Problems*, chiefly relating to neuralgic affections and intermittent fever. Dr. Thomson, of Newry, gives a short account of a method adopted by him in *Amputation of the Penis.* Mr. Moore supplies a curious statistical account of the chief medicinal substances employed in the practice of Physicians in Dublin during the last sixty years. And Dr. Lendrick publishes certain observations on diseases of the Nervous System.

In the reviewing department, we find two excellent articles from the pen of Dr. Graves, on some new researches of Treviranus respecting organic elements, and the intimate structure of animal substances.

To some of these contributions we shall have other opportunities of attending: at present we are tempted to make room for the curious paper of Mr. Moore.

Statistical View of the comparative Frequency in which the principal Medicines used during the last sixty years have been prescribed in Dublin. By William D. Moore, Licentiate of Apothecaries' Hall, &c. &c.

Conceiving that it would be interesting, and at the same time useful, to ascertain with precision what medicines have been for some time most relied upon for the removal of disease, and what revolutions each has experienced in the favour of the medical profession, I have made the following analysis of the prescriptions received at the establishment opened by my grandfather in the year 1780, of which accurate copies have been kept, and which afford materials for exhibiting the practice of the most eminent physicians and surgeons of Dublin, for a period of nearly sixty years.

In order to effect this I have divided the entire time into three equal portions; from each of these I have taken 1200 prescriptions, and marked the frequency with which each medicine occurred in them. The results are shewn in the following table. The first column contains the years from 1780 to 98; the second terminates with the year 1817; and the third with 1836.

Emetics,	74	7	6
Enemata,	58	7	20
Blisters,	47	64	39
Warm plasters,	45	10	3
Leeches,	1	20	45
Antimonial Preparations.			
Tartar emetic,	104	31	50
James's powder,	4	36	44
Kermes mineral,	8	3	0
Antimonial powder,	14	28	15
Narcotics and Sedatives.			
Opium,	102	79	116
Morphia,	0	0	4
Paregoric elixir,	72	28	13
Digitalis,	0	8	3
Hyoscyamus,	0	4	44
Lactucarium,	0	0	11
Peruvian bark,	102	42	13
Quinine, sulphate,	6	0	20
Saline Preparations.			
Alum,	5	1	1
Nitre,	45	9	11
Glauber's salts,	35	12	2
Sal polychrest,	38	0	0
Sulphate of potash	0	12	22
Rochelle salt,	63	13	22
Epsom salt,	0	213	102
Diaphoretics.			
Mindererus's spirit,	67	35	22
Nitrate of soda,	3	12	2
——— potash,	6	0	1
——— ammonia,	0	2	21
Guaiacum,	32	10	2
Sarsaparilla,	8	15	5
Stimulants, Antispasmodics, &c.			
Castor,	8	10	1
Musk,	4	1	0
Assafœtida,	18	7	12
Camphor,	9	22	52
Ammonia,	64	88	39
Ether,	9	22	2
Spirit of nitrous ether,	20	10	10
Iron,	22	42	20
Preparations of Mercury.			
Calomel,	84	189	114
Blue pill,	17	39	156
Mercurial ointment,	35	11	1
Æthiop's mineral,	15	0	0
Mercury with chalk, Mercurius alcalizatus	18	6	35
Purgatives and Aperients.			
Jalap,	136	35	14
Scammony,	80	120	54
Colocynth,	19	31	67
Aloes,	46	79	63
Senna,	94	107	134
Castor oil,	62	73	32

Rhubarb,	81	59	170
Magnesia,	70	43	52
Syr. rosar. solutio,	21	0	0
Expectorants, &c.			
Hippo,	62	58	152
Ammoniacum,	21	26	11
Squills,	33	47	45
Iceland moss,	0	2	7
Basilicon ointment,	32	7	0

From the foregoing table it appears that the emetics which we have met in the first period, have in point of number, to those in the second, the proportion of 10 to 1, while to those in the third the ratio is 12 to 1. It was at that time the invariable practice to administer an emetic on the accession of an attack of fever, a practice which by no means obtains at present, and which appears to be intimately connected with Dr. Cullen's theory of the proximate cause of fever. In his Practice of Physic, published in the year 1777, three years before the commencement of our table, he describes the use of emetics as being "a means of determining to the surface of the body, and thereby taking off the spasm affecting the extreme vessels," and after mentioning their various effects upon the viscera as well as on the surface of the body, he states that they are remedies well suited to the cure of fever. The writer also of the article Emetics in the Edinburgh Medical Dictionary says, that the modern practice of employing emetic remedies in fevers, is founded on their power of producing a degree of action in the stomach, which is communicated to the extreme vessels, so as to restore their tone, and overcome the spasm affecting them. From these and other circumstances, I think I am justified in concluding that the introduction of emetics into such general use, was at the time to which I have alluded, of recent date, and also in coupling Dr. Cullen's theory of fever with them in their rise and fall.

Enemata occur during the last forty years, taken together, something less than one-half as often as during the first twenty, and it is remarkable, that the period in which they are at their lowest ebb, commences at the time that Dr. Hamilton directed the attention of the medical world to the importance of administering purgative medicines in a great number of diseases. Although he employed enemata frequently in hospital practice, his book appears to me to speak chiefly of purgatives given by the mouth, and I think it not unlikely that the diminution in the use of enemata at that particular time was mainly owing to the appearance of his work. They seem latterly to have increased again, and are at present extensively used in hospitals.

Local bleeding has been making a gradual and deservedly steady progress, greatly assisted latterly, no doubt, by the attention which Broussais has directed to the state of the gastro-enteric mucous membrane in fever. This increase of its employment may partly account for the diminished frequency of the occurrence of blisters and warm plasters, while the latter have also partly given way to stimulating liniments and other means of counter-irritation.

The great frequency of the occurrence of tartarized antimony in the first period is chiefly owing to its use as an emetic, and as it entered into the composition of almost every one given, at least sixty may be deducted, leaving its ordinary employment at forty-four, so that except as an emetic we meet it most frequently in the third period.

Kermes mineral was formerly much prized as a remedy, though a most violent one, in pneumonia. While it has ceased to be employed, the antimonial and James's powders have increased, and it may be observed, that the total number of the preparations of antimony is nearly equal in each of the three periods.

The steady manner in which opium has kept its ground, while its camphorated tincture has fallen into comparative disuse, is worthy of remark. The preparations of morphia appear to have displaced the latter rather than the former. It seems to be the opinion of most physicians at present, that they answer sufficiently well as a quieting addition to a cough mixture, but that they cannot, with advantage, supersede the other preparations of opium, when the intention is to procure a night's rest. The black drop is, perhaps, at present the most frequently used for this purpose.

The preponderance of hyoscyamus latterly is due to the extract being now frequently ordered in combination with blue pill, it having become, with many practitioners, the most common corrigent of that medicine.

Previously to the year 1798, Peruvian bark was generally given in the form of powder, and the red was the kind most frequently so prescribed. After that time the infusion and tinctures of the pale bark began to be more used, and latterly the sulphate of quinine has, in a great measure, superseded all.

It will be seen that Epsom salt has been rather recently introduced into general use, its place having been formerly supplied by Rochelle salt, sal polychrest, and the sulphate of soda.

If nitre and James's powder be compared, it will seem as if they had changed places in the favour of the medical profession, at least if we suppose them to be used in similar cases, which I think is not unlikely. This appears at once by placing them together, thus,

Nitre,	45	9	11
James's powder,	4	36	44
	49	45	55

By the citrates of potash, soda, and ammonia, I mean the solutions obtained by neutralizing the carbonates of those alkalies with lemon juice, as they are generally prescribed in diaphoretic mixtures.

The great increase in the use of blue pill may be attributed to Mr. Abernethy's strong recommendations of it. Indeed, I believe before his time it was not given except as part of a regular mercurial course, and never in the manner in which it is now so frequently exhibited, namely, as an alterative or antibilious medicine at bed-time, followed or not by a purgative in the morning.

The falling off in the use of mercurial frictions is well shewn in the table by the numbers annexed to the mercurial ointment, a fact to be accounted for by the great improvements in the treatment of the venereal disease.

Jalap has decreased and rhubarb increased more than any other remedies in the class of purgatives and aperients. The syrup of solutive roses, now completely gone out of use, was a frequent adjunct to aperient draughts and mixtures.

Hippo [Ipecacuanha] is much more used at present than formerly, and this will appear more clearly, if it be considered that in the first period its use, as well as that of tartarized antimony, was chiefly as an emetic.

It is a curious fact, that fifty years ago blisters were seldom dressed with simple ointment; indeed it appears to have been thought injudicious to allow a blistered surface to heal soon. They were generally either dressed with basilicon, or with the ointment of an indigenous plant called melilot, (trifolium melilotus officinalis of Linnæus,) which I have omitted to mark in the table, although it occurs very frequently as an accompaniment of blisters.

In order to shew the opinions which were entertained with regard to the treatment of blisters, I shall conclude with a quotation from the Complete English Dispensatory, published in the year 1742, where the melilot is described as "consisting of warm subtle parts, mostly employed in dressing blisters, until they cease running, and skin over, for its warmth still promotes the discharge and prevents mortification, which in some constitutions they are very liable to, especially if dressed with things that are cooling, which the heat of the parts frequently provokes persons *very injudiciously* to venture upon."

MEDICAL GAZETTE.

Saturday, September 3, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

MORE TASK-WORK FROM THE POOR-LAW COMMISSIONERS.

We were somewhat surprised, on Wednesday last, upon receiving the following letter from a correspondent:—

"Sir,—I ask your readers whether they approve the dainty device of Mr. Secretary Chadwick for degrading the profession into a Company of Parish Clerks? Medical men generally have endured enough from the hands of the Poor-Law Commissioners; but this last impertinence beats hollow all their former doings. In the *Chronicle* of to-day is a *feeler* upon the subject—written, I suppose, by one of the Downing-street 'industrious fleas;' that is, supposing

Mr. Rhinoceros Rice and Lord Little John have not left town. In this libellous balderdash upon the 'medical trades unions,' honourable mention is made of the *liberal* designs of the Commissioners *in re* giving the '*patronage*' of the appointment of *Doctor-Registrars* to the representatives of the rate-payers !!

"Your obedient servant,

"W. W.

"August 31, 1836."

Anxious to know more about this matter which filled our friend with such hot indignation, we turned to the Ministerial organ referred to, and there found the new and "dainty device" contrived by Mr. Chadwick and his employers. The tale of bricks, it seems, is too easily wrought out, and the task-masters cry that the labourers are idle. Have these people sworn to omit no opportunity of heaping insult upon insult on medical men? Are they not satisfied with having put the members of a liberal and learned profession on a level with their butchers and bakers, who contract by *tender* for the price of their commodities? Let any person calmly read the passages we are about to quote, and say whether the parties who indited them are not bent on the most provoking discourtesies?—whether they do not but too clearly betray their tyrannous wish to humble to the dust the spirit of those who dare to offer them a manly resistance?—whether their design be not, if possible, to crush an order of men whom they cannot readily convert into slaves?

As we have not room for the whole of this last manifesto issued from Somerset House, we must premise that it is directed as a circular to the *clerks* of the several Boards of Guardians throughout the country, announcing that in consequence of the new Act coming in force, for the registration of births, deaths, and marriages, "registrars" will be wanted presently. Those *clerks* may, if they choose, accept the office of "*superintendent*-registrar:" while the respectable subordinate appointment of *registrar* is to be thrown as a bait or a bonus to the medical men connected with the "unions."

"Each person appointed as a local registrar must possess such qualifications as the registrar-general may by any general rule declare to be necessary. If the person appointed as registrar by the guardians be an officer of the union, his appointment will be subject to the approval of the Poor-Law Commissioners.

"The duties of the registration of the births, deaths, and marriages (which it is expected on the average may be about twenty-nine births, nineteen deaths, and seven marriages, in every thousand of the population), will not in general suffice to occupy more than a small portion of the time of any person within a district of convenient distance from the local registrar, or from the superintendent-registrar, and the probable emoluments would be *inadequate to obtain the exclusive services* of a person properly qualified; as the duties may also, in general, be conveniently performed by *the paid officers of the union*, from the tenor of the Act it is suggested that it was the intention of the legislature that the several offices should be performed by the paid officers of the union, where no obstacles to that arrangement exist.

"The Commissioners trust that when the time arrives for making these appointments, the guardians will appoint those officers whose ordinary duties are the most consistent with the duties of registration. It appears by the schedule (B) appended to the aforesaid Act, that the legislature has declared that in the registration of deaths, the *cause* of death shall be recorded: it is evidently important that this record should be made with care and exactness; and for this purpose the Commissioners consider that the public would derive advantage from the duties of the office of registrar being performed by *a medical officer of the union*, when those duties are not inconsistent with his engagements, and he may be disposed to perform them.

"These officers will be the better qualified to perform these duties, amongst other reasons, from having been accustomed, in pursuance of the orders of the Commissioners, to keep a register of the sickness and mortality amongst the classes in receipt of parochial relief, in which register it has been prescribed that the known or supposed cause of the disease and death shall be recorded.

"Where the medical officers may decline accepting the office of registrar, it appears to the Commissioners that the class of officers next best qualified to perform the business of registration, are *collectors of the poor-rates* appointed by the board of guardians."

But if any doubt exist in the mind of the reader as to the true spirit in which this new field of usefulness is opened to the profession, it will soon be removed by the editorial comment which appears in the same paper: the identical Mr. Chadwick, or some other "industrious flea" in office (as our correspondent suggests), wishes, doubtless, to *feel* how the bait will be accepted. A more coolly impertinent strain of remark than that with which the "feeler" is put forth, is not often to be met with; but the perpetual laudation of "the Commissioners" shews at once from what quarter it proceeds.

"The *Medical Trades' Unions* throughout the country are adverse to the new Poor-law measure, and violent in their *hostility to the Commissioners*, whose duty it is to prevent the labouring classes from being pauperised, and the funds of the rate-payers being wasted. The *firmness of the Commissioners* in allowing this description of relief to be given only in cases of emergency to those who are in a state of actual destitution, has been the *great protection of sick clubs* and all the institutions for voluntary insurance. The Commissioners have also been assailed for leaving the medical men *to settle their own terms of service* under competition. This is not a question upon which we can now enter at length. The Commissioners have pointed out the medical men engaged in the new unions as the most fitting persons to perform the duties of local registrars, whenever they were willing to perform them. The qualifications of the medical men, from their *comparative* superiority of education to the *other officers*, is obvious."

It is added, that the Commissioners intend to bestow on "the representatives of the rate-payers, at the newly-appointed Boards of Guardians, the *patronage* of the appointment of local registrars."

We need offer no remark on the flippant impudence with which these passages are charged; they carry their own character and commentary with them. But we must say, that if medical men remain passive under the repeated indignities thus offered them by the hirelings of the universally-execrated "amended Poor-law," they must be reckoned among the meekest—the most spiritless of mankind. What think now, we should be glad to know, the members of the deputation so courteously cajoled last summer by my Lord John Russell? Will they still continue to expect redress from that quarter—redress which, deferred till Parliament has ceased to sit, may be now fairly considered as postponed to the Greek calends?

BRITISH ASSOCIATION AT BRISTOL.

The anniversary meeting at Bristol last week seems to have produced much gratification: all parties, whether philosophers, amateurs, amusement-hunters, mere listeners and lookers-on, or of either sex, had abundant sources of enjoyment. What with the promenades and sight-seeing out of doors, the proceedings in the several sections, the public dinner each day, and the meeting in the theatre in the evening, the round of recreation, mental and bodily, appears to have been complete. The strong muster of men of science evidently made an impression on the good people of the western commercial capital: some of them seem to have been quite enraptured with what they saw and heard. But we will quote the flowery language of the worthy Editor of the Bristol Journal.

"We never experienced a more highly gratifying sight. You saw men of the very highest ability—so much so as to

create astonishment in the minds of most, that man should possess an intellect so powerful, a conception so clear, an ingenuity so acute, a memory so strong, an imagination so vast—in fact, a mind approximating so near to perfection as to turn our attention to the Deity to wonder what that Being must be, who could have created such a creature as scientific man? If you turned your attention to the heavenly bodies, you could find men who could explain every motion that belonged to them. If you proceeded to the earth, there were those to whom every particle of dust was familiar: if you picked a flower or a weed, a friend at your elbow could explain its properties, its virtues, and its dangers: you found that not a wave on the waters had passed unheeded—not a stone rolled before you without a name—scarcely a disease to which humanity is liable, but its origin and its consequences might be traced: animate and inanimate nature were laid open to your view; the practical effects of all theories made apparent; you found that there was hardly any thing the properties of which were not known, and you looked around you and exclaimed, 'can this be man?'"

There is eloquence for you! Who will say, after this, that there can possibly be any falling off of interest in the successive meetings of the Association? Yet, from what has transpired elsewhere, we are rather inclined to suspect that the recent concourse has not been quite so large as it was when Oxford, Cambridge, Edinburgh, or Dublin, was the scene of the display. There were, indeed, many of our most celebrated *savans* assembled: among them, Professors Buckland, Sedgwick, Whewell, and Henslow, Drs. Dalton and Roget, Sir D. Brewster, Sir W. Hamilton, Mr. Babbage, &c.; but never was there such a lack of foreign *distingués*: we believe there was not one visitor of any eminence from the Continent.

As to the transactions, much business, as usual, seems to have been done in the several sections. We have collected from various quarters a report of the proceedings—chiefly confining ourselves to the departments of medicine and chemistry. The result will be found below.

MEDICAL EDUCATION.

SOCIETY OF APOTHECARIES.

In the official Report of the Court of Examiners (see p. 894), we are sorry to observe the complaint of the difficulties experienced in ensuring a sufficient preliminary education in the candidates for the Society's license. We trust that no exertion will be spared to enforce the regulation on this head, if not to render it still more strict and imperative. Already we have seen that the party alluded to in a preceding article begin to sneer at the education of medical practitioners, which they talk of as merely "*comparatively* superior" to that of their parish collectors and overseers. The Society of Apothecaries can only be looked to, in the present order of things, to take care that no stigma of *positively* deficient education attach to general practitioners. Let them insist on having proof of a good general range of acquirement in the young men who come to be registered at their hall; and by all means let their rule, as to what they call "classical" proficiency, never be relaxed. Unfortunately the tendency, of late, has been to undervalue such acquirements, and the fruits are now beginning to be seen.

PROCEEDINGS

OF THE

SIXTH ANNIVERSARY MEETING

OF THE

BRITISH ASSOCIATION

FOR THE ADVANCEMENT OF SCIENCE.

Assembled at Bristol, Aug. 22—27, 1836.

On Monday, the 22d, business commenced in the Sections: of these there were seven, under the guidance of the following Presidents:—

Mathematical and physical science, Rev. W. Whewell; chemistry and mineralogy, Professor Cumming; geology and geography, Rev. Dr. Buckland; zoology and botany, Professor Henslow; medical science, Dr. Roget; statistics, Sir Ch. Lemon; mechanical science, Mr. D. Gilbert.

Medical Science *.

In the medical section, Dr. Roget was supported by Dr. Bright and Dr. Macartney as vice-presidents, Dr. Symonds acting as secretary.

Dr. Roget opened the business by a few words on the nature and objects of the Association, and then, for himself personally, intreated the indulgence of the members, as he had lately been suffering from a severe attack of ophthalmia. Dr. O'Beirne then read the following report of the Dublin committee *on the Pathology of the Nervous System*:—

"The committee appointed in Dublin to investigate the pathology of the brain and nervous system, feel compelled on the present occasion to confine themselves to an analysis of the cases of nervous affection, which have come under their observation during the short period which has elapsed since they have considered themselves to be regularly appointed.

"They are of opinion that, in order to arrive at accurate pathological conclusions on a subject so extensive and complicated, and on which the most eminent authorities are found to disagree, a very great number of cases should be first submitted to their examination—then, the symptoms of each case carefully registered, and, subsequently, accurate post-mortem examinations made, in the presence of the committee, to ascertain the structural lesion or lesions with which the symptoms co-existed.

"As far as their investigations have yet extended, they see that the subject, if considered in all its details, will require a considerable length of time before they can accumulate such a number of cases and matured observations, as would justify them in drawing general conclusions.

"Further they have to state, that they have collected some valuable facts relating to injuries and diseases of the nerves, which seem to throw light upon the disputed points of the physiology and pathology of this portion of the nervous system. They are of opinion, however, that more extended observations on this branch of the subject are required to be made. They would also submit the necessity of repeating those experiments on animals, upon which so many authorities rely as a foundation for their doctrines.

"The committee, influenced by the above considerations, have decided on avoiding for the present any attempt at drawing general conclusions. They consider it more judicious to collect and arrange for a future report, should they be re appointed, the abundant materials which their opportunities enable them to supply.

"In furtherance of this object, they have been for some time engaged in registering the history and symptoms of cases of nervous affections in the wards of the House of Industry, Dublin, and the different hospitals connected with it.

"This Institution contains, independently of cases of paralysis, (estimated at about 150), the following cases of mental and nervous affections, arranged as follows:—

	Males.	Females.	
Chronic insane	71	179	
Epileptic ditto	24	33	
Congenital idiots	69	62	
Epileptic ditto	14	20	
	178	294	Total, 472

"The number ef cases which the committee have been enabled to examine with sufficient accuracy, amounts to 41. Of these they have made an analysis. They have also some cases of affections of individual nerves.

(Signed) James O'Beirne, M.D.
George Greene. M.D.
John Macdonnell, M.D.
R. Adams, A.M. T.C.D.

"Dublin, August 17, 1836."

Dr. O'Beirne then read a paper entitled, "*An Abstract of a Work on Tetanus*," in which he pointed out the use of the tobacco enema, and dwelt at considerable length on the differences between the spurious tetanus and the true.

At the close of the paper, Dr. O'Beirne, in reply to questions put to him by some of the members, observed, that with respect to arguments deduced from the exhibition of poisons, he thought they must be drawn from analogy, and be unsatisfactory; there was no poison which produced tetanus, without producing other symptoms not peculiar to tetanus, and that all cases referred to in illustration of the subject ought to be shown in all their bearings. One gentleman in relating a case had stated, that there was tenderness of the abdomen, whereas in *real* tetanus there is no such symptom; and he believed that many others referred to as tetanus, were far from genuine.—Mr. Bracey Clark stated, that he had observed some remarkable appearances in the bodies of horses which had died of tetanus. The intestines were always constricted, and he uniformly found on dissection, either great congestion, or positive inflammation of the lungs. Bleeding had been found to effect a cure.—A member inquired of Dr. O'Beirne, whether he had ever used oil of turpentine in this disease; he had found it bene-

* For a part of our report of the first two days, we are indebted to the Athenæum, Aug. 27.

ficial as an enema; the proportion he used was ℥ij. Ol. Tereb. to ℥j. of laudanum; and pouring cold water on the head at the same time. Dr. O'Beirne had no objection to the use of the oil, but he wished not to complicate the treatment. Mr. King related a case, which terminated favourably after an immense living lumbricus had been voided.

A short description of a case of Aneurism of the Arteria Innominata, furnished by Sir D. H. Dickson, was then read.

Tuesday.

Dr. Roget in the chair.

The first paper read was on the Treatment of some *Diseases of the Brain*, by Dr. Pritchard, which will be found at page 871.

The second paper read was by Dr. Houston, on a Human Fœtus without Heart or Lungs. Several drawings were exhibited, and the reading of the paper led to a short discussion, in which Drs. Prichard, Carson, O'Beirne, Macartney, and Mr. Carmichael, took part.

The third paper was by R. Carmichael, Esq., *On Tubercles.* Mr. Carmichael commenced with some remarks on the great prevalence of these formations, and then proceeded to detail their appearances according to Laennec and Carswell. He adverted to the use of the term Scrofula, which he considered a cloak for ignorance; and, having stated that Drs. Todd, Clark, and Carswell, believe in the identity of Scrofula and Tubercle, disputed this position, and likewise their opinion that tubercles are inorganizable deposits. Among other objections, he urged the inconsistency of representing enlarged cervical glands and pulmonary tubercles as identical, since it is well known that the former may be injected, but not the latter; and of maintaining the non-inflammatory origin of tubercles, together with the view that these bodies are lifeless matter; since, if such is their nature, they must excite inflammation in the tissues which contain them. He allowed, however, that the scrofulous constitution disposes to tubercles, but only in the same manner as to cancer.

Mr. Carmichael next adverted to the generally-recognized connexion between scrofula and disordered digestion, and claimed the priority of this observation by reference to a work which he published in 1810. He then proceeded to argue, at considerable length, in favour of the parasitical origin of tubercles, pointed out the absence of vascular communication between these bodies and surrounding parts, and observed, so long as the former retained their vitality, no inflammation takes place. The author declared his opinion, that carcinoma must likewise be arranged among the entozoa; and, having indicated the division of a cancerous formation into a medullary and a cartilaginous portion, assigned to the former an independent vitality, the latter being only a barrier which nature sets up against the parasite, and observed, that the containing cyst belongs to the surrounding tissue. The cartilaginous portion he stated might be injected, but not so the medullary tubercles, which he considered more allied to carcinoma than to scrofula. Having spoken of the difference between fungus medullaris and fungus hæmatodes, he proposed to arrange the formations which had passed under review, as constituting four species of entozoa:—1. Tubercles found in the lungs. 2. Tubercles found in the abdominal organs. 3. Fungus medullaris and fungus hæmatodes. 4. Carcinoma.

Mr. Carmichael next considered the exciting causes of tubercles, and concluded by urging, that practitioners must direct their attention rather to the prevention than the cure of the disease.

A short discussion followed. Some objections were brought forward by Dr. Macartney, and answered by Mr. Carmichael.

Wednesday.

Dr. Roget in the chair.

The business of the section commenced by reading—

First. "A report of the Dublin Committee appointed by the British Association, on the Motion and Sounds of the Heart," read by Dr. Macartney.

Secondly. "A report of the London Committee on the same subject," read by Dr. Clendinning.

An interesting paper was then read, "*On the Gyration of the Heart*," by Augustus Greeves, Esq., of Nottingham.

The author stated his views and conclusions in the shape of a series of propositions, of which the following is an authentic copy *:—

1. The dilatation of the ventricles in diastole is effected by ordinary muscular contraction. Whenever the fibres of an organ are arranged spirally around it, so that, in contracting, each tends to a parallel with a plane drawn longitudinally through the axis of the organ, then the *contraction* of those fibres may *enlarge* the organ, if they have a fulcrum to act upon.

2. When a set of muscular fibres are placed at an angle with another set simultaneously contracting, one set may become

* We are much obliged to Mr. Greeves for his promptitude in forwarding this report.

a fulcrum for the motions of the other, as in the tongue and the elephant's trunk.

3. The ventricles are each formed of two series of spiral fibres, winding from apex to base in opposite directions, of two longitudinal and one diagonal.

4. The contraction of that set of spiral fibres whose turns are contrary to "the thread" of a screw, effect, with the internal longitudinal fibres, the systole or involution, by twisting up the ventricle, and thus making it gyrate, as the left hand pronates.

5. The spiral sets whose turns correspond with the thread of a screw, with the diagonal series as a fulcrum, and the external longitudinal, produce in contracting the evolution or diastole, and gyrate the ventricle, as the left hand supinates.

6. The gyrations commence at the apex and pass to the base; and thus the internal longitudinal fibres (destined to sustain the auriculo ventricular valves during the systolic pressure) contract (during systole) *successively*, so that no vibration or sound occurs on their closure, because the entire valve is not put into a state of tension at the same moment. The gyration increases towards the apex.

7. The ventricles do not empty themselves during systole. This is the reason of the clearness of the second sound.

8. The curves of the two great arteries around each other are so arranged, that while the ventricles, by their intrinsic muscularity, are gyrating as the left hand pronates (during the systole), the untwisting of those double curves (by the current of blood passing through them) gyrates the ventricles *en masse* in the opposite direction. This mechanism causes—

9. A diminution of friction.

10. A steadiness and celerity of motion, upon the principle of the "Tilt-hammer."

11. A progression or forward movement of the whole organ.

12. An isochronous effect, producing the regularity of the pulse, on the same principle as the pendulum or balance spring of a watch.

13. The pericardium operates as a peripheral axis for the motions of the heart: hence, to examine its movements after removing the pericardium, is like taking off one of the plates in which the wheels of a watch work, in order to observe their motions.

14. The true use of the auricle is to maintain the equilibrium of the venous system, preventing collapse, friction, and pulsation; just as elasticity and contractility do in the arterial system.

15. The true cause of the first sound is the sudden tension of the ventricle during systole, augmented by the vibrations of the contained fluid, and of the sudden change of gyration from one direction to another, just as the thong of a whip when it is cracked.

16. The impulse follows the first sound the *moment* the *whole* ventricle is in a state of systole. Its causes are—first, the progression of the heart (No. 11); second, the pressure of the atmosphere impelling the *diminished* ventricle against the thorax; third, the contraction of the left ventricle, *having first gyrated round into the proper position so to do*, carrying the ventricle against the thoracic parietes with a force equal to the difference between the power of the left and right ventricles.

17. These principles are applicable to all forms of the heart, and are supported by the facts of comparative anatomy; they apply also to the mechanism of the capillaries, and to every physical structure and function.

Mr. Greeves confirmed his several positions by direct experiment, and illustrated them to the Association by various mechanical experiments, cases of pathology, and preparations of human and comparative anatomy.

A paper "*On the Polarization of Light observed in the Crystalline Lens*," by Dr. Brewster, was read by the president, as was also a letter by the same gentleman, on the subject of Cataract.

The last paper brought before the meeting was one "*On Absorption*," by Dr. Carson, of Liverpool.

Thursday.

Dr. Macartney in the chair.

The first paper read was by Dr. Hodgkin, "*On the Connexion between the Veins and Absorbents.*" Dr. Hodgkin observed, that the committee appointed to make inquiries into this subject, had been fortunate in the opportunities afforded them of examining the bodies of subjects in whom the lymphatics were much developed. There was a great difficulty in injecting the lymphatics, it requiring a sharp eye and a delicate hand to be anything like successful. Mercury injected into the lymphatics will sometimes pass off by the veins, and some are disposed to admit of a natural communication between these structures. In injecting subjects at Guy's Hospital, it was found that the mercury passed easily from the glands into the veins, in very recent subjects. The idea of transudation through the sides of the vessels must be rejected in mercurial injections, though it may happen when water is injected. Mr. Bracey Clark, in injecting the vessels in a horse, found a direct communication between the receptaculum chyli and the lumbar veins. If water is thrown into the arteries, it will almost immediately fill the lymphatic

vessels. Dr. H. had seen lymph flowing in the thoracic duct tinged with blood. Mr. King had observed the fact, that the thyroid gland contained a number of small cells, which were filled with a fluid differing from any other, and it is almost proved that there is a communication between the internal surfaces of these cells and the lymphatics of the organ. The most remarkable observations on the lymphatics have been made on the inferior animals. Dr. Hodgkin observed that he believed the communication of the veins and lymphatics occasionally happened, but that they were not found at will. Dr. H. then explained the construction and uses of the valves of the different vessels, and illustrated his description by diagrams.

Dr. Reid then read his paper, entitled, "A short Exposition of the Functions of the Nervous Structure," the length of which precludes our insertion of it.

Dr. Gayward read to the Section a paper by Mr. Alcock, containing some particulars on the Anatomy of the Fifth Nerve.

Dr. Macartney exhibited to the members a portable probang. He also read two short papers. One, an account of the Organs of Voice in the New Holland Ostrich, and the other on the Structure of the Teeth.

The last paper was by Mr. Walker, on the Nerves and Muscles of the Eye-ball.

Friday.

Dr. Roget in the chair.

The first paper read was entitled "*Observations on the Pathological Condition of the Bones in Chronic Rheumatism*;" and "*On the Condition of the new Circulating Channels in a case of Double Popliteal Aneurism.* By Mr. Adams." The nature of the former disease was stated at much length by the author. From its being sometimes mistaken for sciatica, it had led to errors in practice; and the proper understanding of it was a desideratum.

The third paper read was a report on "*Fracture of the Neck of the Thigh Bone*, by Dr. Evanson."

After this, was read a paper of Mr. Hetling's, "*On a new Instrument for the Removal of the Ligature of Arteries at pleasure.*" The use of this instrument was illustrated by several cases, particularly in that of a patient (now before the meeting) who had been operated on for double popliteal aneurism; the operation had been facilitated, and the disease cured, by the application of this instrument.

Mr. Hetling having stated he had a few of the instruments with him (manufactured by Mr. Plum, of Dolphin-street, to whom he paid a high compliment for his ingenuity in the manufacture of surgical instruments generally), several gentlemen purchased them in the room. High encomiums on the invention have been passed by Sir Charles Bell, and by Mr. Hodgson, of Birmingham, who was present. In the case of Lord Nelson, who endured the adhesion of a ligature four months on the stump of his arm with agony, the ligature and pain would have been instantly removed by the application of this instrument.

Mr. Gordon, dentist, then exhibited (although in an unfinished state) some very beautiful models, in ivory, representing the head, neck, heart, and lungs of the human body, by unfolding its different parts —the mechanism of which is of a very superior order. He also intends exhibiting microscopic views of parts of the eye, and three models of the ear, being parts of the entire figure. After the exhibition of the above models,

Mr. Broughton (who, on the retirement of Dr. Roget, had presided during the latter period of the sitting) stated that they had now arrived at the conclusion of their labours; and he could not but express the great satisfaction he felt in the progress which that section had made. In conclusion, he, in common with his professional brethren, begged to return his thanks for the kind and hospitable manner in which they had been received in Bristol.

Chemistry and Mineralogy.

In the Chemical Section, Professor Cumming was supported by Drs. Dalton and Henry,—Dr. Apjohn and Mr. Herapath acting as Secretaries.

Monday.

Mr. Watson read a paper "*On the Phosphate and Pyrophosphate of Soda*;" one, however, of so much detail, as scarcely to admit of compression. The results at which he arrived are the following:—1st, That phosphoric acid gives off water in being converted into the pyrophosphoric acid, and that hydrogen and carbon are component parts of the former. 2d, That phosphoric and pyrophosphoric acids are altogether different,—different in their composition and their atomic weight; that of the phosphoric being 36·1, and that of pyrophosphoric 31·7. 3d, That the precipitate given by pyrophosphate of soda and lime water, when calcined, is black; that afforded by phosphate of soda and lime water, white. 4th, That, contrary to the prevailing opinion, a solution of the pyrophosphate of soda does not spontaneously change into phosphate.

Mr. Ettrick on a New Form of Blow-

pipe.—The principal novelty in this apparatus was the method employed for maintaining a constant blast independent of hydrostatic pressure. This was accomplished by small bellows, thrown into very rapid action by means of a wheel and pinion, and a stop-cock inserted in the tube connecting the bellows and cylindric reservoir. To prevent the air from being too much compressed, the bellows were furnished with a valve, opening outwards, and which was pressed upon by a spring, the force of which admitted of being very readily varied. From the cylinder there are two eduction pipes, terminated by nozzles, so that by using these, and a pair of lamps, two jets of flame might be brought to bear upon the same object. He also explained how air might be made to issue from one, and coal, or other inflammable gas, from the other; and exhibited a tube similar to that long since described by Professor Daniell, by the use of which a combustible atmosphere might be made to issue from an orifice without any previous mixture in a reservoir.

Dr. Hare in observing on this paper, incidentally described the apparatus which he has for many years been in the habit of using, with a view to the fusion of refractory substances; and stated, that the double tube of Daniell had been used by him many years before it was described by the person whose name it usually bears. Dr. Hare stated, that he had also used the double jet, but had long since laid it aside from a conviction of its inutility.

Mr. Herapath then drew the attention of the Section to the composition of Bath Water, as recently determined by him, and detailed the methods of analysis which he adopted, and the results at which he arrived. This analysis, which appeared to have been elaborate and exact, was conducted in the following manner:—Evaporation to dryness gave the total amount of saline matter. This was resolved into two parts by rectified spirit, which dissolved the chloride of sodium and magnesium, and left the other materials. The residue was treated with muriatic acid and alcohol, and the various matters taken up estimated in the usual way. Finally, what remained undissolved by the acidulated spirit was found to be a mixture of soda, lime, and silex, the relative quantities of which were also determined. His final results would not appear to differ materially from those of other chemists. The total amount, indeed, of saline matter obtained by him was greater, and Dr. Thomson suggested that this was probably not due to error of experiment, but to the circumstance of the waters themselves having actually altered in composition; a fact which, at least in one instance, he had established by experiment.

Dr. Hare next described his Apparatus for the Analysis, on the plan of Volta, of Gaseous Mixtures. It consists of two distinct parts, his eudiometer and calorimeter; in the former of which he measures and confines, and, by the latter of which, he fires the mixture. The combustion is not produced, as in the case of the common eudiometer, by an ordinary electric spark, but by igniting with the calorimeter a fine platinum wire, which traverses the gaseous mixture. It is unnecessary to give a more detailed account of this very ingenious apparatus, as it is figured and described in the system of Berzelius, which is, no doubt, in the hands of every chemist.

Tuesday.

Mr. Exley's paper *On the reduction of Chemistry to Mathematical Principles*, was the first read. Mr. Exley commenced with a division of atoms, into what he denominated the *tenacious*, the *ethereal*, and the *electrical*; the first being distinguished by possessing the greatest, the last by enjoying the least *absolute* force, while in this particular the electrical occupied an intermediate position. In reference to these atoms, two propositions were then laid down, the first of which affirmed the atoms to attract each other according to the inverse square of the distance up to a particular point, when the attraction was converted into repulsion; the second, that dissimilar atoms differ in the relative energies of their attractive and repulsive forces, though these forces vary according to the same law. Mr. Exley having compared his views with those of Newton and Boscovich, and pointed out the particulars in which they agreed, and in which they differed, proceeded to state the grounds which led him to conclude that water was a ternary, not a binary compound; or, in other words, that sixteen, not eight, was the atomic weight of oxygen.

Having disposed of these preliminary topics, Mr. Exley entered upon the development of his views, in the form of a series of sixteen propositions. It is scarcely necessary to say, that this part of his paper does not admit of popular explanation; and it would be presumptuous in any individual to undertake the task, who was not deeply versed in the mathematical sciences, and who had not had the advantage, not only of perusing, but of studying, the profound researches of Mr. Exley. We have, however, no hesitation in asserting that these researches are deserving of mature consideration. According to Newton, before an hypothesis is ad-

mitted, it must be proved *true*, and adequate to the explanation of phenomena. The former test is sometimes very difficult of application, and would be particularly so in the present instance. But, as respects the latter criterion, it must be admitted to pronounce in favour of Mr. Exley's theoretical postulates; for, by following *these* out, and applying to them mathematical reasoning, he is enabled to anticipate and explain a variety of the most important facts in chemistry and general physics. Thus, he deduces with facility from his principles the ordinary laws of chemical combination, Gay-Lussac's law of volumes, and even the variations of volume, which the gases are known to experience when submitted to various temperatures and pressures. But the most striking evidence of the truth of his theorems, adduced by Mr. Exley, remains to be mentioned. He has calculated by his abstract methods the specific gravities of fifty-seven substances, supposed in the gaseous state (some, such as alcohol, oil of turpentine, and camphor, being compounds of an extremely complex nature), and found the results to correspond as closely as could in such investigations be expected, with those obtained by direct experimental means. Doctors Dalton and Thomson of Glasgow, as well as other competent judges, bore testimony to the ingenuity and talent shewn in Mr. Exley's paper.

Mr. Babbage exhibited a thermometer, recently discovered in Italy, and supposed to be one of those originally manufactured for the Societa del Cimento It appeared to be filled with alcohol. The bulb was spherical, and the stem was divided into fifty equal parts by beads attached to it by fusion at equal distances. These instruments, as is well known, being graduated without reference to fixed points, do not give indications comparable with those of the modern thermometer. Libri, it is generally understood, and the circumstance was stated by Professor Babbage, has attempted the interpretation of the scale of these instruments, partly by a comparison with each other of ancient and modern meteorological registers, and partly by taking with them the temperatures of certain tepid waters in the Pyrennees, which had been previously examined by the Florentine Academicians. Dr. Daubeny observed upon the inaccuracy of the latter method, as that springs undoubtedly undergo, in process of time, very considerable changes of temperature.

Mr. Herapath on Arsenical Poisons, and Poisoning with Realgar.—The next paper read was by Mr. W. Herapath, on arsenical poison: he observed, that as arsenical poisons were obtained with so much facility, and their operation was so deadly, they were the principal means resorted to by secret poisoners. It became, therefore, essential to the safety of the community, that every new fact relating to their administration, operation, or detection, should be made known. He was not aware that any well-authenticated case had been published, where death was occasioned by realgar, or red arsenic, but the Burdock case was one of this kind. It would perhaps be remembered that the victim, Mrs. Smith, had been buried fourteen months; that upon exhumation orpiment was found in the stomach, and the body was partly converted into adipoeire. In prosecuting his experiments in this case, he conceived the idea of identifying the poison found, with that sold the witness, Evans, by Hobbs, the druggist, through an impurity he discovered in the poison of the stomach. With this view he purchased some out of the same box, and requested that it might be of the same kind as that sold the prisoner's agent. It then transpired that the box contained three different substances mixed together: white, yellow, and red arsenic; the two former in small lumps, the latter in powder; and that it was the powder of realgar only which had been administered, although it was undoubtedly found as yellow orpiment in the exhumed body. In tracing the possibility of change, he found that two agents, sulphuretted hydrogen and ammonia, would either of them convert realgar into orpiment. Now, as it was well known that both these gases were evolved during putrid decomposition, there could be no difficulty in accounting for the change of colour. But to place the matter beyond all doubt, he made a direct experiment by poisoning an animal with some of the same realgar, and found that after putrefaction it had been changed, as in the case of Mrs. Smith. It would, perhaps, be recollected, that the conviction of the prisoner was mainly owing to the evidence of a little girl, who deposed that she saw Mrs. Burdock put a powder into some gruel, and afterwards to administer it to Mrs. Smith. At the time, considerable doubt was entertained of the truth of her evidence, from its being invariably precise even to a word; and also from the difficulty of believing that any person would be found so fool-hardy as to mix and administer poison before a child, and that child a stranger. But what he had stated proved to demonstration that her evidence was correct, for she said the gruel given "was of a nasty *red* colour;" a colour she could not have had an idea of, unless she had seen it, as nothing had

transpired of red arsenic; and had she invented a tale to account for the appearance of the body, or had she spoken from what she had heard from others, she would have deposed to its being of a yellow colour.

From what had occurred, therefore, it was clear that the realgar of the shops would cause death; that half an ounce given at twice (by the prisoner's confession), was sufficient for that purpose; that realgar became orpiment during putrefaction; that realgar, like arsenious acid, had a tendency to control putrefaction, and convert bodies into adipocire. During the experiments upon this case, he found that the microscopic system of testing, which was first introduced by Dr. Wollaston, and which he (Mr. H.) constantly followed, could be made to improve the very beautiful reducing process preferred by Dr. Christison; and also furnished an excellent method of proving to the jury the presence of arsenic. Mr. H. here described several chemical tests by which the presence of arsenic may be discovered, and described the method in which he found arsenic in the case of Sophia Edney, who was convicted at the March assizes, at Taunton, of poisoning her husband. He concluded by observing that the recent plan of discovering arsenious acid, by converting it into arsenuretted hydrogen, and depositing the arsenical crust during its combustion, was the most elegant that could be conceived, at the same time that it was the most sensitive; but it would require a few modifications to make it the best for exhibition to a jury. First, it was essential that the zinc used to procure hydrogen should have been treated by the experimenter in the same way without arsenic; otherwise the counsel would embarrass the witness by asking if he was certain that arsenic was not contained in the zinc; and next, the metallic crust should be so received as to be kept from atmospheric air, otherwise it would lose its lustre by passing into the "fly powder" of the Germans. He had found it best to proceed thus:—Instead of a plate of glass, in order to cool the flame and receive the crust, he used one of mica, with three drops of water in separate places on one of its surfaces; if the flame was allowed to play under one of those drops, the evaporation of the water kept the part cool, and the crust was thicker, while the risk of fracture was avoided; then, by inverting the plate, and holding the drops in succession some little height over the flame, they became solutions of arsenious acid, and could be tested with three reagents as before stated; and if it was necessary to make a quantitative experiment, the products of the flame could be condensed in a large globe, and the arsenious acid then dissolved and precipitated by sulphuretted hydrogen. The part of the plate of mica containing the crust, should be cut off, and introduced into glass tubes hermetically sealed, like the slips of blotting paper, containing the coloured results of reagents.

Thursday.

In the Chemical Section on Wednesday and Thursday there was no subject of very striking interest brought forward; but on the latter day, in the Section for Geology, the following proceedings took place:—

Dr. Buckland took the chair, when a paper was read "*On the change in the chemical character of Minerals induced by Galvanism.*"

Mr. Fox mentioned the fact, long known to miners, of metalliferous veins intersecting different rocks containing ore in some of these rocks, and being nearly barren, or entirely so, in others. This circumstance suggested the idea of some definite cause; and his experiments on the electrical magnetic condition of metalliferous veins, and also on the electric conditions of various ores to each other, seem to have supplied an answer, inasmuch as it was thus proved that electro magnetism was in a state of great activity under the earth's surface, and that it was independent of mere local action between the plates of copper and the ore with which they were in contact, by the occasional substitution of plates of zinc for those of copper, producing no change in the direction of the voltaic currents. He also referred to other experiments, in which two different varieties of copper ore, with water taken from the same mine, as the only exciting fluid, produced considerable voltaic action. The various kinds of saline matter which he had detected in water taken from different mines, and also taken from parts of the same mine, seemed to indicate another probable source of electricity; for can it *now* be doubted, that rocks impregnated with or holding in their minute fissures different kinds of mineral waters, must be in different electrical conditions or relations to each other? A general conclusion is, that in these fissures metalliferous deposits will be determined according to their relative electrical conditions; and that the direction of those deposits must have been influenced by the direction of the magnetic meridian. Thus we find the metallic deposits in most parts of the world having a general tendency to an E. and W. or N. E. and S. W. bearing. Mr. Fox added, that it was a curious fact, that on submitting the muriate of tin in solution to voltaic action, to the negative pole of the battery, and ano-

ther to the positive, a portion of the tin was determined like the copper, the former in a metallic state, and the latter in that of an oxide, shewing a remarkable analogy to the relative position of tin and copper ore with respect to each other, as they are found in the mineral veins.

The Chairman said, it had been observed to them last evening, that the test of some of the highest truths which philosophy had brought to light was their simplicity. He held in his hand a blacking pot, which Mr. Fox had bought yesterday for a penny, a little water, clay, zinc, and copper, and by these humble means he had imitated one of the most secret and wonderful processes of nature—her mode of making metallic veins. It was with peculiar satisfaction he contemplated the valuable results of this meeting of the Association. There was also a gentleman now at his hand, whose name he had never heard till yesterday, a man unconnected with any Society, but possessing the true spirit of a philosopher;—this gentleman had actually made no less than 24 minerals and even crystalline quartz.—(*Loud cries of Hear.*)—He (Dr. B.) knew not *how* he had made them, but he pronounced them to be discoveries of the highest order; they were not made with a blacking pot and clay, like Mr. Fox's, but the apparatus was equally humble; a bucket of water and a brickbat had sufficed to produce the wonderful effects which he would detail to them.

Artificial Crystals and Minerals.—Mr. Cross, of Broomfield, Somerset, then came forward, and stated that he came to Bristol to be a listener only, and with no idea he should be called upon to address a section. He was no geologist, and but little of a mineralogist; he had however devoted much of his time to electricity, and he had latterly been occupied in improvements in the voltaic power, by which he had succeeded in keeping it in full force for twelve months by water alone, rejecting acids entirely. Mr. Cross then proceeded to state that he had obtained water from a finely crystallized cave at Holway, and by the action of the voltaic battery had succeeded in producing from that water in the course of ten days numerous rhomboidal crystals, resembling those of the cave; in order to ascertain if light had any influence in the process, he tried it again in a dark cellar, and produced similar crystals in six days, with one fourth of the voltaic power. He had repeated the experiment a hundred times, and always with the same results. He was fully convinced that it was possible to make even diamonds, and that at no distant period every kind of mineral would be formed by the ingenuity of man. By a variation of his experiments he had obtained grey and blue carbonate of copper, phosphate of soda, and 20 or 30 other specimens. If any members of the Association would favour him with a visit at his house, they would be received with hospitality, though in a wild and savage region on the Quantock hills, and he should be proud to repeat his experiments in their presence. Mr. C. sat down amidst long continued cheering.

Professor Sedgwick said he had discovered in Mr. Cross a friend who some years ago kindly conducted him over the Quantock hills on the way to Taunton. The residence of that gentleman was not, as he had described it, in a wild and savage region, but seated amidst the sublime and beautiful in nature. At that time he was engaged in carrying on the most gigantic experiments, attaching voltaic lines to the trees of the forest and conducting through them streams of lightning as large as the mast of a 74-gun ship, and even turning them through his house with the dexterity of an able charioteer. Sincerely did he congratulate the section on what they had heard and witnessed that morning. The operations of electrical phenomena, instances of which had been detailed to them, proved that the whole world, even darkness itself, was steeped in everlasting light, the first-born of heaven. However Mr. Cross may have hitherto concealed himself, from this time forth he must stand before the world as public property.

Professor Phillips said, the wonderful discoveries of Mr. Cross and Mr. Fox would open a field of science in which ages might be employed in exploring and imitating the phenomena of nature.

Friday.

In the Chemical Section, on Friday, the following papers were read:—

Some improvements on the Voltaic Battery; by Mr. Cross. Observations on Atmospheric Electricity; by Mr. Cross. On a new compound found during the destructive distillation of Wood; by Mr. Scanlan. On a peculiar compound of Carbon and Potassium; by Professor E. Davy. On a new gaseous Bicarburet of Hydrogen; by Professor E. Davy. On the conducting power of Iodine; by Dr. Inglis. On Fluorine; by Mr. Knox. On detecting the Strength of Spirits, by diluting with Water; by Mr. Black. And a Communication on the Aurora Borealis, by Dr. Traill.

At the general meeting held on Saturday (27th), various grants of money were awarded for the promotion of particular branches and objects of science, in which medicine was not forgotten.

GLOUCESTER GENERAL INFIRMARY.

To the Editor of the Medical Gazette.

Sir,

If you think the inclosed cases of patients who lately came under my care at the Gloucester General Infirmary worth inserting in your valuable periodical, they are at your disposal, as may suit your convenience.—I am, sir,

Yours, &c

T. C. Buchanan.

Gloucester, Aug. 24, 1836.

Compound Fracture—Gangrene—Operation—Death.

Tho. Shirling, labourer, æt. 20, but looking much older, was brought to the Gloucester General Infirmary April 15th, about 5 o'clock in the evening, with a compound fracture of the right leg, occasioned by a fall from the top of a rick. There was a wound over the middle of the fibula, about as large as a sixpence, but no protrusion of bone; there was a slight puffiness above the wound, occasioned apparently by effusion of blood, but there was no hæmorrhage from the wound. More restlessness was present than is usually seen after a compound fracture. The limb was placed in the straight position; splints were lightly applied; and a spirituous lotion was ordered.

April 16th.—The man is very restless, tossing his head about on his pillow; he has vomited twice in the night; his skin is extremely hot; his pulse 110, and hard; his leg is slightly swelled, but presents no unusual appearance. Not knowing but that his symptoms might be in some measure connected with the general shock to the system produced by the fall, and concluding that, if ever venesection were serviceable in compound fracture, this was the kind of case for it, I ordered—

V. S. ad ℥viij. S. Haust. Aper.

April 17th, 11 A.M.—Gangrene has taken place, and appears extending; the foot is cold; the leg below the knee is quite black, with here and there vesication; and air escapes upon pressure from the cellular membrane in the vicinity of the wound; the inside of the thigh nearly as far as the scrotum is of a deep brown colour, but externally the discoloration does not proceed quite so high; the glands in the groin are enlarged and painful. The man is calm; pulse 100; tongue dry, and rather brown; skin slightly moist. One of my pupils, who visited him, and looked at the leg yesterday evening, assures me there was no appearance of gangrene then, so that it must have occurred during the night. I immediately requested a consultation of my colleagues, and Messrs. Wilton and Playne favoured me with their assistance. After some discussion it was agreed that, although most likely death would ensue under any circumstances, yet that the *best* prospect of recovery was afforded by amputation, and that there was *sufficient* probability of its saving life to justify so painful a proceeding; that an ample number of instances of success had occurred to warrant amputation in traumatic gangrene before the formation of the line of separation, and that in all probability the patient would never be in a more favourable state than at present for the performance of the operation. The operation, therefore, was performed at half past 2 o'clock, P. M., in the adjoining surgery; and it will be sufficient for me to state that, after the tourniquet had been so adjusted that it had pressed well upon the artery in the groin, an incision was made through the integuments rather obliquely round the thigh, being on the inside as high as opposite to the lower part of the scrotum, and on the outside, somewhat lower. It was impossible, however, to avoid cutting through dark brown coloured skin on the inner part of the thigh. The femoral and profunda arteries were tied immediately after the division of the muscles, and several smaller arteries, after the removal of the limb; and the femoral and profunda veins, which afforded troublesome hæmorrhage when all constriction from the stump had been removed, were also secured. But although little blood was lost, the man fainted and vomited twice or three times during the operation. Brandy, however, and the recumbent position, slightly restored him; and after the stump had been lightly dressed, and sufficient revival had taken place to justify any movement, a warmed bed was brought close to him, and he was gently lifted into it. Throughout the day his pulse continued fluttering, sometimes perceptible, sometimes not. He vomited occasionally small quantities of brandy, with ammonia and laudanum, which were now and then given him; and warmth and animation were with some difficulty maintained.

April 18th, 11 A.M.—About the middle of last night the man began to retain egg beat up with brandy in it, which was occasionally given him, and afterwards slept at intervals. This morning his pulse is small but steady; he is quite rational; his tongue moist at the edges, but brown and dry in the centre.

Ordered small quantities of egg and arrow-root, with a little brandy in them, at intervals of an hour, when he was awake.

9 o'clock P.M.—The man is restless; flatulency and pain at the stomach distress him; he vomited about an hour since. His pulse is 100, small and steady.

℞ Tinct. Opii, ♏xxx.; Mist. Camph. ℥ij. S. dimid. statim et reliquum post horas quatuor.

19th, *meridie*.—Pulse 110, and steady; tongue moist at the edges; slept in the night for two or three hours at a time; has no pain at the stomach. The stump was examined, as the dressings had become loose. There was no appearance of gangrene; it was dressed simply.

℞ Mist. Camph. ℥vj.; Tinct. Opii, ʒj. S. ℥j. 4tis horis.

7 o'clock P.M.—Pulse 120, soft and regular; skin moist; tongue clean. He has taken arrow-root, good broth, and egg with small quantities of brandy, at short intervals during the day.

Rep. omnia.

20th, 11 o'clock A.M.—The man slept for two or three hours at a time during the night; his pulse is 120; skin moist; tongue clean; face a little flushed. No union of the stump has taken place, but the integument looks as well as it generally does after amputation. A poultice was put on.

Rep. omnia. Ordered meat, if he could eat it, at dinner.

7 o'clock P.M.—The man is rather delirious; pulse 110, and easily compressible; skin moist; tongue clean. He has taken during the day ℔ss. of ale, and a little good broth, together with arrow-root, and egg beat up as before; he was unable to eat any meat at dinner.

21st, 11 A.M.—The man did not sleep more than a quarter of an hour at a time during the night; his pulse this morning is 100, and small; skin moist; tongue clean.

Rep. mistura. Ordered good beef-tea, and a table-spoonful of brandy in each quantity of arrow-root; also ℔ss. of ale.

The muscular surface of the stump looks rather sloughy, but the integument retains its natural appearance. It was dressed with lint dipped in a weak solution of chloride of lime; simple dressing over; then a piece of oiled silk, on account of its being lighter than a poultice; and over all a piece of linen, wrapped so as to afford a gentle and regular support.

9 o'clock P.M.—Pulse 130, very easily compressible; hands cold; skin moist; tongue clean. Has dozed a great deal in the afternoon.

Ordered ℥ij. of brandy in his food during the night, and ℥j. statim in warm water. Rep. cætera.

22d, 11 A.M.—The man has slept much during the night; has taken ℔ss. of good broth, ℥ij. of brandy, and ℔ss. of arrow-root. Pulse 120; skin moist; is disposed to sleep, so much so, that the stump was dressed without his consciousness. It appears much the same as yesterday: some imperfectly-formed pus was mixed with the dressings.

He was ordered as much port wine as he could comfortably take in the day; warmed ale, with bread sopped in it, at dinner; broth, &c.

At half-past 4 o'clock P.M. he died.

Post-mortem examination next morning.—Nothing particular was found: there were some old adhesions of the pleura pulmonalis of the left lung to the pleura costalis; the femoral and profunda arteries and veins were filled for about an inch from their ligatures with a firm brownish coagulum adherent to the sides of the vessels.

Examination of leg, April 18th.—On examining carefully the tibial and peroneal arteries, no rupture could be detected in them. The broken extremities of the bones were rather jagged, and had lacerated some of the fibres of the tibialis anticus muscle. Several dark vascular patches, like ecchymoses, were observable in the substance of the posterior tibial nerve, particularly opposite the fracture; and at two or three places below small vessels were seen running about half an inch upon the nerve, and then apparently dipping into it.

Traumatic Delirium Tremens.

Henry Phipps, bumbailiff, a spare man, æt. 40, was admitted into the Gloucester Infirmary, March 17th, 1836, with a simple fracture of both bones of the leg. The limb was placed in a straight position, and low diet and aperient medicine were ordered.

March 18th. — His bowels have been freely opened, but he has passed a bad night. A large vesicle has formed on the inside of the leg, which appears somewhat contused: a spirituous lotion was applied to it, and as the man appeared irritable, an opiate was ordered at bed-time.

19th. — The position of the leg was found much disturbed, and the patient was restless and slightly delirious. In the evening he had a decided attack of delirium tremens; he got out of bed, and was so unmanageable that a strait-waistcoat was obliged to be used. His countenance was pale; skin hot; pulse 90. His arms and legs were at intervals violently agitated: some minutes he fancied he was about to fall from a height, and earnestly called upon imaginary persons to assist him; at other moments he thought himself executing a writ, and ever and anon vociferated to his companions, "Jack," "Ned," and "Bill," to prevent the escape of the individual pursued; and sometimes he supposed himself in confinement at home, and bitterly complained of the treatment received. He was ordered broth, arrow-root, and the following:—

> Tinct. Opii, ♏xxv.; Conf. Arom. gr. x. Mist. Camph. ℥j. f. Haust. 4tis. horis sumendus.

20th.—He had slept little, but was more composed. Pulse 95; tongue trembling, and moist at the edges; perspiration profuse.—Rep. omnia.

21st.—Has been talking and struggling almost incessantly throughout the night. The injured leg, however, having been strapped down, and the splints well padded with cotton wool, but little mischief had arisen to it. His pulse, skin, and tongue, were much the same as yesterday. He was ordered immediately a strong glass of brandy and water, with an egg beat up in it. This he at first refused to take, fancying it was poison, but he was at last prevailed upon. He took another glass of brandy and water in the course of the day, but it had little effect in quieting him; and as some of his relations came in the evening, from whom it was ascertained that he was accustomed to drink ale, he was ordered at bed-time

> Tinct. Opii, ♏xlv. in a pint of ale.

22d.—He has passed a good night: he is quite calm and composed. Ordered meat, or good beaf-tea, at dinner and supper, and, as his bowels have not been opened since the 20th,

> Decoct. Aloes, c. ℥j. 4tis horis donec alvus soluta fuerit.

He was ordered, moreover, two pints of ale in the course of the day, and

> Pulv. Opii, gr. ij. at bed-time.

The limb was examined and was proceeding favourably: the waistcoat was removed.

23d.—His bowels have not been opened, and he has passed a sleepless night, but answers questions rationally. His pulse 74; skin cool. He has no headache; there is a slight spasmodic action of the arms and legs.

> S. Ol. Ricini, ℥j. statim; to continue the meat, ale, and opium.

24th. — His bowels have been thriee opened; he has passed a good night, is perfectly collected, and says he feels as if he had been in a dream.

From this time the opium was gradually diminished till April 16th, when he discontinued it entirely, and only a pint of ale a-day was allowed him.

May 12th.—He was discharged cured; able to walk well.

Ruptured Urethra from accident.

In the evening of April 19, 1836, Frederick Jones, æt. 15, fell from a height, with his legs widely separated, across a two-inch board, upon his perineum. He suffered a great deal of pain throughout the night, and was unable to pass more than a tablespoonful of urine, mixed with blood. He was brought to the Gloucester Infirmary the next day (April 20th), when the scrotum and perineum were found much swelled and discoloured; and the bladder somewhat distended. He was placed in a warm bath, and immediately after his removal from it, an attempt was made to draw off his urine, with the catheter; which, however, could not be introduced farther than the membranous part of the urethra, through an aperture of which the point of the instrument was distinctly felt to pass. In the evening he was again put in a warm-bath, an opium suppository having been previously placed in the rectum; and then, after a little manipulation, an elastic gum catheter was introduced, and retained in the bladder; a pint of urine being evacuated, which afforded much relief.

> S. Ol. Ricini, ℥ss. statim, et repr. 4tâ horâ postea si opus sit.

April 21st.—The bowels have been well opened. The prepuce is much swelled; the scrotum and perineum are tense and painful; the urine flows pretty freely through the catheter, but occasions a vast deal of smarting while passing. To remove all possibility of extravasation, and give vent to matter which would doubtless be formed, an opening was made in the perineum, which was ordered to be fomented and then poulticed.

22d.—The urine flows chiefly through the catheter, but a small quantity, mixed with pus, passes through the opening in the perineum. The lad is free from pain, and the tension of the scrotum and perineum is materially diminished.

25th.—The discoloration and swelling of the genitals are entirely gone. The catheter was removed, and not re-introduced, in order that an opportunity might be afforded of ascertaining how far the closing of the urethra was expedited by the use of the instrument.

29th.—As the quantity of urine which has passed through the preternatural opening in the urethra has increased daily, and now nearly the whole of it takes that course, the catheter was again employed.

May 5th.—The urine has flowed freely through the catheter since last report till to-day, but now it principally makes its exit at the penis, by the side of the catheter; some, however, still continues to pass through that instrument, but only a few drops through the wound in the perineum. The catheter was withdrawn, but not without some little difficulty, a considerable incrustation having taken place around its vesical extremity. A rather larger instrument was passed, and retained in the bladder as before.

7th.—The catheter was removed, and was not re-introduced, as the urine was seen to pass freely through the penis during micturition.

12th.—The wound in the perineum is quite healed, and the lad micturates without inconvenience in a full stream.

A bougie was afterwards passed several times, to prevent any inordinate contraction of the urethra, and the lad was discharged, able to pass his urine freely.

Diseased Hip-joint—Partial Suppuration—Cure.

Samuel Winn, æt. 15, a rather strumous-looking lad, was admitted into the Gloucester Infirmary, April 16th, 1835, with a diseased hip-joint in the first stage. He limped in walking, complained of pain in the hip and knee; the nates were flattened and the limb lengthened.

April 17th.—He was ordered to take—

Vinum Ferri, with Gentian Infusion, twice a day; and Pil. Hydrarg. and Pulv. Rhei, aa. grs. ij. tertiâ quâque nocte.

22d.—He was cupped over the nates.

25th.—An issue was made behind the trochanter major, which relieved the pain considerably.

July 11th.—His general health is much improved, and he can walk without experiencing any uneasiness in the hip. He has a slight cough. As he was anxious to go home, and the country air, it was thought, might prove beneficial, he was allowed leave of absence for a month, but was directed not to heal up the issue.

August 8th.—He returned from the country, and on examining the nates an indistinct fluctuation of fluid was felt. Perfect rest, and tincture of iodine, with infusion of gentian, twice a day, were ordered.

12th.—As the former issue was nearly healed, a fresh one was made near it. Hydrarg. c. cretâ and rhubarb, as a gentle aperient, were directed to be occasionally taken.

Sept. 14th.—The fluid under the glutei is advancing towards the surface. The nates were ordered to be painted twice daily with tinct. iodinæ. Notwitstanding these remedies, the fluid continued to accumulate till Oct. 8th, when a small puncture was made, and a pint of turbid sero-purulent fluid was evacuated. A flannel, wrung out of warm water, was for some time applied to the part, while the fluid oozed from the aperture, in the manner recommended by Sir Benjamin Brodie; afterwards a poultice was put on.

The opening closed, and in a fortnight another puncture was made at a short distance from the former, and half a pint of sero-purulent fluid was discharged as before.

In three weeks another puncture was made, at two or three inches from the others, and three ounces of the same kind of fluid escaped. After this a farther slight secretion of fluid took place, which, during the external and internal use of iodine, and the employment of the issue, was absorbed.

March 7th, 1836.—The nates feel flabby, but no distinct fluctuation is discernible. Ordered to rub over the nates daily a little unguent. hydrarg., and to heal up the issue.

At the end of March the lad was discharged, able to walk without limping, and quite free from pain. The glutei were rather flabby, but there was free mobility of the joint, without the slightest uneasiness or inconvenience.

REPORT OF THE COURT OF EXAMINERS TO THE SOCIETY OF APOTHECARIES.

The Court of Examiners, in reporting to the Master, Wardens, and Court of Assistants, the result of their labours during the past year, have the honour to state, that the total number of candidates examined during that period amounts to 556, being considerably above the number of any former year.

Within that period, 450 gentlemen have received their certificates of qualification; of whom, several have shown so great a proficiency in every branch of their medi-

cal studies, as to have received the especial commendations of the Court, and 106 have been directed to return to their studies for the period prescribed by the act of parliament; of which number, 36 have been rejected solely on account of their defective knowledge of the Latin language.

The Court regret extremely that they are compelled to report so large a proportion of rejections during the last year, amounting nearly to one in every five candidates, and they cannot but lament that ignorance of the Latin language still continues to be of such frequent occurrence; and this is the more to be regretted, as the attention of the profession has been called repeatedly, during the last twenty years, to this particular point.

In order more efficiently to test the classical attainments of the candidates, and at the same time to enable them subsequently to devote their time exclusively to their medical studies, the Court instituted last year a preliminary examination in the Latin medical classics, which came into operation on the 30th May, 1835, and has been continued every succeeding Saturday, under the direction of three members of the Court, who take this duty in rotation. Since that time, 1200 students have undergone this examination. The Court have reason to know that this plan has proved highly acceptable to the students, not only in London, but throughout the whole of the provincial schools.

The Court beg to subjoin the number of the registrations in the London and provincial schools in October, 1835:—

Of Pupils Registered

In the provincial schools	322
London	640
Total	962

J. Bacot, Chairman.

Apothecaries' Hall,
July 28, 1836.

JOURNAL OF OPHTHALMOLOGY.

We perceive that Mr. Middlemore, of Birmingham, purposes starting a journal with this title. From his well-known talent and industry, we should be inclined to anticipate a favourable issue to such an undertaking—though we cannot say, from our own experience, that a work of the kind is very much wanted.

In his prospectus, Mr. Middlemore thus speaks of his more immediate intentions.

"He is solicitous," he says, "to state, that he is not endeavouring to institute this journal from any motive of private gain; he is endeavouring to institute it because, in the prosecution of his own researches, he has experienced the want of a publication of this nature; and because he believes that its establishment will greatly tend to elevate the character of ophthalmic science in England, and place it in that advanced position which every lover of the medical profession must wish it to attain. If the announcement of this journal excite the expected degree of attention, the editor's plans are so far matured that the first number will appear in January next; but, if otherwise, he will prefer to delay the accomplishment of his design, rather than hazard its eventual prosperity by making an abortive attempt to carry it into immediate execution. The editor would further remark, that should he be placed in a condition to realize the plan he has now suggested, no outlay of time—no expenditure of labour—no justifiable sacrifice of private engagements, which a devotedness to the service in which he has embarked can prompt—shall be omitted, to render the work useful and interesting, and to establish and maintain its claims to permanent professional support."

SIR ANTHONY CARLISLE.

A correspondent informs us, that "however little worth" we may think Sir Anthony's evidence, given before the late Tunnel Committee, "it brought the worthy knight a fee of twelve guineas.' We are glad to learn that Sir Anthony does not disdain making a penny, even in this way—*lucri bonus est odor*, &c. But we must entreat, that when next he comes before the public as a witness, he may have some better qualification for talking about *tunnels* than that of being merely a *bore*.

LITERARY ANNOUNCEMENT.

An Essay on Tetanus. By T. Blizard Curling, Assistant-Surgeon to the London Hospital, and Lecturer on Morbid Anatomy: for which the Jacksonian Prize for the year 1834 was awarded by the Royal College of Surgeons in London. *In the press.*

NEW MEDICAL BOOKS.

On the Progress and Shedding of the Human Teeth. By R. Maclean. Royal 8vo 10s.; or with the Plates, col'd, 12s.

The Anatomist's Instructor, and Museum Companion. By F. J. Knox. 12mo. 4s. 6d. bds.

The Principles and Practice of Obstetric Medicine. By David D. Davis, M.D. 2 vols. 4to with plates, 4l. 4s. cloth.

On Deformities of the Chest. By Wm. Coulson. Post 8vo. 3s. 6d. cloth.

CHARING CROSS HOSPITAL.

We have received Mr. Pettigrew's pamphlet, but shall not, at least for the present, enter upon the subject of its contents; and this for two reasons: first, because it has already been sent all over the town; and secondly, because it is, and bears internal marks of being, an *ex parte* statement. When the opponents of Mr. Pettigrew explain — and there is much that imperatively requires explanation— we may, perhaps, however reluctantly, feel compelled to remark upon certain transactions which we suspect will be found to reflect credit on none of the parties concerned, and which we are not without fear may tend to injure the cause of medical charities generally.

COLLEGE OF SURGEONS.

LIST OF GENTLEMEN WHO RECEIVED DIPLOMAS IN AUGUST.

Joshua Paynter, Pembroke.
John A. Robinson, Dundrum.
James Sinclair, A.
Richard S. Edsall, Exeter.
E. Jones, Newcastle Emblyn.
Thomas H Keown.
R. Collum, Tanhouse Water, Enniskillen.
W. J. Best, Thetford, Norfolk.
Thomas R. Jackson, Congleton.
Edward Bayley, Shrewsbury.
Robert Bage, Shrewsbury.
W. Williams, Pontypool.
Robert N. Stone, Bath.
Alexander A. G. Harvey, Bath.
Charles Elwyn, Albemarle-street.
W. Selby, Lyon's Inn.
Redmond Rooney, Enniskillen.
E. H. Rudderforth, London,
John Firth, Congleton.
James E. Beveridge, Wandsworth.
O. A. Field. Bromley, Kent.
Clement Wallworth, Congleton.
John H. Freeman, Mile End.
James B Shaw, London.
W. Stafford, Calcutta.
Thomas J. Roderick, London.
Richard Smith, Winchcombe.
John Acton, Bromley, Kent.
E. Horseman, Middle Salop,
William Stuart, Woolwich.
F. B. Dixon, Norwich.
Charles Meymott, London.
Donald Dalrymple, Norwich.
Thomas N. Moody, Woolwich.
Hugh Mackey, A.
W. J. J. Dowlin, Cork.
Patrick Hynes, Burrin, Clare.
W. H. Brown, Lewisham.
Francis R. Gray, Cawston, Norfolk.
John D. F. Parsons, Bristol.
Benjamin V. Corning, Dublin.
Edmund T. Allen, Manchester.
Charles A Merriman, Marlbro'.
Charles Godwin, Cork.
Josiah G. Kershaw, Huddersfield.
Henry Tweedy, Dublin.
B. Ridge, Terrace, Putney.
Francis W. Williford Chelsea.
Arthur Noverre, Kensington.
W. B. Pickering, Upper Philimore Place, Kensington.
James Naylor, Preston.
Geo. A. Stewart, Montague Place, Hammersmith.
Richard Hobart, Cork.
Henry L. Porter, South Australia.
Leo F. Michael, Stamford.
John Hart, Westbourn Place, Eaton Square.
Nicholas O'Connor, Cork.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

September 1, 1836.

Nathaniel Coats, Ilfracombe.
Stephen Lunn Muller, Old Kent Road.
William Palmer Gillanders, Brighton.
John Levett Benson, Norton.
Henry Francis Burdett, Gilmorton.
William Joshua Jefferies Dowlin, Cork.
Frederick Charles Canet.
William Henry Dry, Oxford. (Aug. 11.)

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *Aug.* 30, 1836.

Age and Debility	39	Hooping Cough	5
Apoplexy	9	Inflammation	29
Asthma	8	Bowels & Stomach	7
Cancer	3	Brain	3
Childbirth	3	Lungs and Pleura	7
Consumption	60	Insanity	7
Convulsions	40	Jaundice	1
Croup	1	Liver, diseased	4
Dentition or Teething	12	Measles	3
Diarrhœa	1	Paralysis	2
Dropsy	12	Small-pox	3
Dropsy on the Brain	15	Spasms	1
Fever	7	Thrush	1
Fever, Scarlet	2	Tumor	1
Gout	2	Unknown Causes	14
Hæmorrhage	1		
Heart, diseased	2	Casualties	9

Increase of Burials, as compared with the preceding week . . 88

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

Aug. 1836.	Thermometer.		Barometer.	
Thursday . 25	from 43	to 66	30·07	to 29 93
Friday . . 26	46	64	29·91	29·92
Saturday . 27	42	69	29 88	29·89
Sunday . . 28	52	64	29·90	29 93
Monday . . 29	44	66	29 99	30 02
Tuesday . . 30	50	67	30 06	30·07
Wednesday 31	52	71	30 01	29 94

Prevailing winds, S.E. and S. by W.
Generally clear, except the 25th, and mornings of the 26th and 28th; rain on the mornings of the 26th and two following.
Rain fallen, ·35 of an inch.

Charles Henry Adams.

NOTICES.

We may find room for the letter from Hereford in our next number; when we shall have a few remarks to make.

Mr. W.'s (Glasgow) letter has been referred to our publishers.

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, SEPTEMBER 10, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

By Jon. Pereira, Esq., F.L.S.

Lecture L.

We have now to notice some of the

Uses of Opium.

1. *In fever.*—Opium is occasionally employed, as a palliative, in fever, to relieve tremors or subsultus tendinum, low or muttering delirium, great irritability, watchfulness, or diarrhœa. It frequently fails, however, in producing the desired effect; and even when it succeeds in allaying the particular symptom for which it was exhibited, the patient is not always in a better or safer condition. I have seen opium restore the consciousness of a delirious patient, and yet the case has terminated fatally. The following cautions should be attended to in the exhibition of it in fever:—It ought not to be used in the early stages of the disease, nor afterwards, when sopor or coma has supervened: moreover, it is generally injurious at any stage when the skin is hot and dry, and the tongue furred and dry; if, on the other hand, the skin be damp, and the tongue moist, it is rarely hurtful, and not unfrequently beneficial.

2. *In inflammation.* — Opium has long been regarded as an objectionable remedy in inflammation, yet it is one we frequently resort to, either for the purpose of alleviating particular symptoms, or even as a powerful auxiliary antiphlogistic remedy. For example, inflammation is sometimes attended with excessive pain, without there being a corresponding intensity in the degree of the local vascular excitement: in such cases the use of opium is frequently justifiable. Again, when inflammation is attended with spasm, or with excessive discharge, we sometimes find it necessary to resort to this narcotic. But of late years opium has been extensively used, in conjunction with bleeding, to subdue inflammatory action. The practice was, I believe, first introduced by Dr. Robert Hamilton, of Lynn Regis; and, in inflammation of certain organs, has been strongly recommended by the late Dr. Armstrong.

(*a.*) *In inflammation of the parenchymatous structure of organs* opium is for the most part hurtful. Thus in *inflammation of the cerebral substance* it is highly objectionable, since it increases the determination of blood to the head. In *peripneumonia* it is for the most part injurious, partly by its increasing the febrile symptoms, partly by its diminishing the bronchial secretion, and probably also by retarding the arterialization of the blood, and thereby increasing the general disorder of the system. It must be admitted, however, that there are circumstances under which its use in this disease is justifiable. Thus, in acute peripneumonia, when blood-letting has been carried as far as the safety of the patient will admit, but without the subsidence of the disease, I have seen the repeated use of opium and calomel of essential service. Again: in the advanced stages of pneumonic inflammation, when the difficulty of breathing has abated, opium is sometimes beneficially employed to allay painful cough and produce sleep. In *inflammation of the substance of the liver*, opium is seldom beneficial: it checks the excretion, if not the secretion, of bile, and increases costiveness.

(*b.*) *In membranous inflammation.*—In *gastritis* and *enteritis*, the use of opium has been strongly recommended by the late Dr. Arm-

strong. After bleeding the patient to syncope, a full opiate (as 80 or 100 drops of the tincture, or three grains of soft opium) is to be administered; and if the stomach reject it, we may give it by injection. It acts on the skin, induces quiet and refreshing sleep, and prevents what is called the hæmorrhagic reaction. If the urgent symptoms return when the patient awakes, the same mode of treatment is to be followed, but combining calomel with the opium. A third venesection is seldom required. In *cystitis*, opium, preceded and accompanied by blood-letting and the warm bath, is a valuable remedy: it relieves the scalding pain by diminishing the sensibility of this viscus to the presence of the urine, and also counteracts the spasmodic contractions. In *inflammation of the walls of the pelvis, of the kidney, and also of the ureters*, especially when brought on by the presence of a calculus, opium is a most valuable remedy: it diminishes the sensibility of these parts, and prevents spasm. In *inflammation of the gall ducts* produced by a calculus, opium is likewise serviceable; but, as in the last-mentioned case, blood letting and the warm bath should be employed simultaneously with it. In *catarrh*, when the first stage of the disease has passed by, and the mucous secretion is fully established, opium is frequently very beneficial: it diminishes the sensibility of the bronchial membrane to cold air, and thereby prevents cough. In severe forms of the disease, blood-letting ought to be premised; and under no circumstance ought we to employ opium at the commencement. In *diarrhœa*, opium, in mild cases, is often sufficient of itself to cure the disease: it diminishes the increased muscular contractions and increased sensibility (thereby relieving pain), and at the same time checks excessive secretion. Aromatics and chalk are frequently advantageously combined with it. In violent cases blood-letting should precede or accompany it. *Mild* or *English cholera*, the disease which has been so long known in this country, and which consists in irritation or inflammation of the mucous lining of the stomach and bowels, is generally most successfully treated by the use of opium: two or three doses will, in slight cases, be sufficient to effect a cure. When opium fails, the hydrocyanic acid is occasionally most effective. In *dysentery*, opium can only be used beneficially in the latter stages, and then with great caution: it is best given in combination with either ipecacuanha or calomel. In *peritonitis*, the same plan of treatment is to be adopted as for enteritis: warm moist applications are on no account to be omitted. In *rheumatism*, opium and calomel, or opium combined with ipecacuanha, is frequently serviceable, both in allaying pain and promoting diaphoresis. In acute cases, blood-letting should precede its use. When the tongue is dry and furred, it is an objectionable remedy. In *gout* it is at best a doubtful remedy.

3. *In hæmorrhages.*—Opium is at times serviceable to obviate certain ill effects of hæmorrhages; as when there is great irritability attended with a small and frequent pulse, and also to relieve that painful throbbing about the head so often observed after large evacuations of blood. In or immediately after uterine hæmorrhage the use of opium has been objected to, on the ground that it might prevent the contraction of the womb. In bronchial hæmorrhage I have more than once seen a practitioner prescribe a pill composed of sugar of lead and opium, and at the same time draughts of the infusion of roses! Now you should be aware that the sulphuric acid of the infusion completely destroys the activity of the acetate of lead, by forming an insoluble sulphate of lead: moreover, opium and sugar of lead mutually decompose each other (a little meconate and sulphate of lead being formed, as well as the acetate of morphia), but their activity is not destroyed, though altered, by the combination.

4. *In spasmodic and convulsive diseases.*—In local spasms produced by local irritants opium is a most valuable agent, as I have already noticed: for example, in spasm of the gall ducts, or of the ureters, brought on by the presence of calculi; in colic, and in painful spasmodic contractions of the bladder, or rectum, or uterus. In spasmodic stricture opium is sometimes useful. In genuine spasmodic asthma, which probably depends on a spasmodic condition of the muscular fibres investing the bronchial tubes, a full dose of opium generally gives temporary relief; but the recurrence of the paroxysms is seldom influenced by opium. There are several reasons for believing that one effect of narcotics in dyspnœa is to diminish the necessity for respiration. Laennec states, that when given to relieve the extreme dyspnœa of mucous catarrh, it frequently produces a speedy but temporary cessation of the disease; and if we explore the respiration by the stethoscope, we find it the same as during the paroxysm, a proof that the benefit obtained consists simply in a diminution of the necessity for respiration. That the necessities of the system for atmospheric air vary at different periods, and from different circumstances, is sufficiently established by the experiments of Dr. Prout: and it appears they are diminished during sleep, at which time, according to Dr. Edwards, the transpiration is increased.

Moreover, the phenomena of hybernating animals also bear on this point; for during their state of torpidity, or hybernation, their respiration is proportionally diminished.

In the convulsive diseases, chorea, epilepsy, and tetanus, opium has been used, but with variable success: in fact, the conditions of system under which these affections occur may be, at different times, of an opposite nature; so that a remedy which is proper in one case is often improper in another. In tetanus, opium was at one time a favourite remedy, and is, undoubtedly, at times of great value. I have already* alluded to the slight effects produced by it on tetanic patients, and mentioned that Blaise refers this diminished operation to an increase of digestive power by the stomach, and asserts that the usual effects are produced by injecting opium into the veins. If the latter assertion be true, the best method of exhibiting this remedy would be by venous injection. In using opium in this disease, you should begin with moderate doses, and gradually increase them until some effect is observed. Chapman mentions two cases cured by it: in one, 1500 grains were taken in 17 days; in the other, twenty ounces of laudanum in 24 hours.

5. *In irritant poisoning.*—Opium is used with advantage to lessen the susceptibility of the alimentary canal, and thereby to diminish the violence of the operation of those local irritants whose action does not depend on any known chemical influence. Cantharides, all the drastic purgatives, when taken in excessive doses, (as elaterium, colocynth, gamboge, scammony, and croton oil or seeds) and arum maculatum, may be mentioned as examples of the substances alluded to. Besides the above-mentioned beneficial operation, opium allays the spasmodic contractions of the bowels, relieves pain, and checks inordinate secretion and exhalation.

In poisoning by the substances called corrosives, (the strong mineral acids, and the alkalies, for example,) diminishing the sensibility of the alimentary canal by the use of opium, cannot, of course, alter the chemical influence of the poisons.

As meconic acid is said to be an antidote in cases of poisoning by corrosive sublimate, opium, in full doses, may perhaps be administered with some advantage, when other antidotes cannot be procured.

In poisoning by the preparations of arsenic, of lead, and of copper, opium is sometimes found useful.

6. *As an anodyne.*—To relieve pain by dulling the sensibility of the body, opium is of all substances the most useful, and the most to be relied on. We sometimes use it to alleviate the pain of inflammation, as already mentioned; to diminish spasm and the sensibility of the part in calculi in the gall ducts, in the ureters, and even when in the urinary bladder; to relieve pain in the various forms of scirrhus and carcinoma, in which diseases opium is our sheet anchor; to allay the pain arising from the presence of foreign bodies in wounds; to prevent or relieve after-pains; to diminish the pain of menstruation; and, lastly, as an anodyne in neuralgia.

7. *In disordered conditions of the intellectual functions.*—When great mental excitement exists without a corresponding excitement of the cerebro-vascular system, opium sometimes gives great relief. It is not unfrequently resorted to, in order to obviate the effects of inebriating substances. I knew a medical man addicted to drinking, and who for many years was accustomed to take a large dose of opium whenever he was intoxicated, and was called to see a patient. On one occasion, being more than ordinarily inebriated, he swallowed an excessive dose of opium, and died in a few hours of apoplexy. In the disease called delirium tremens, or phrenesis potatorum, full doses of opium are frequently serviceable; but this medicine is not to be regarded as a specific. If there be much fever, or evident mark of determination of blood to the head, it should be used with great caution, and ought to be preceded by loss of blood, cold applications to the head, and other antiphlogistic measures.

8. *In mortification.* — When mortification is attended with excessive pain, opium is resorted to. In that kind of mortification called *gangræna senilis*, which commences without any visible cause, by a small purple spot on the toes, heels, or other parts of the extremities, and which sometimes arises from an ossified condition of the arteries, Mr. Pott strongly recommended opium, in conjunction with a stimulating plan of treatment.

9. *In venereal diseases.*—Opium is frequently employed in venereal diseases to prevent the action of mercurials on the bowels during salivation; also to allay the pain of certain venereal sores. By some it has in addition been employed as an anti-venereal remedy; and according to Michælis and others, with success. Moreover, it is stated by Dr. Ananian, who practised at Constantinople, that those persons who were in the habit of taking opium rarely contracted the venereal disease.

10. *In diabetes.*—Of all remedies for this hitherto intractable malady, opium has been found to give the most relief. Under its use the specific gravity, saccharine quality, and quantity of urine, have been diminished. It has not, however, hitherto succeeded in permanently curing this disease.

* MEDICAL GAZETTE, vol. xvii. p. 70.

11. *As an external application.* — Mixed with camphor, or soap liniment, or with oil, opium has been used in the form of friction, in colic, trismus, &c. In solution, it has been applied to painful ulcers, and to the conjunctiva in some forms of ophthalmia. As an injection, it has been used in gonorrhœa and gleet. In spasmodic stricture, to prevent chordee, and in diseases of the prostate gland, opium is sometimes used as a suppository. Lastly, applied to a carious tooth, often relieves tooth-ache.

Preparations and administration: 1. *In substance.*—Frequently opium is given *in substance*, in the form of pill, powder, lozenge, or electuary; either alone or in combination. Its dose varies from 1-8th of a grain to two or three grains, or even more than this, according to the particular effect which we wish it to produce. When a powerful sudorific effect is required, the *pulvis ipecacuanhæ compositus*, commonly called *Dover's powder*, is one of the best preparations. It consists of one grain of powdered opium, the same quantity of powdered ipecacuanha, and eight grains of sulphate of potash. The last-mentioned substance assists, by its grittiness, to divide the other more active constituents. The dose is from five to ten, or fifteen grains. It is commonly stated, that the opium and ipecacuanha mutually neutralize each other—that is, the opium checks the emetic effects of the ipecacuanha, while the latter diminishes the narcotic operation of the former. My own observation, however, leads me to doubt the correctness of the statement. A pill composed of one grain of opium and about five grains of camphor, is also a powerful sudorific.

Frequently we combine opium with astringents; and there is in the Pharmacopœia a preparation of this kind—the *pulvis kino compositus* — composed of one grain of opium, four grains of cinnamon powder, and fifteen grains of powdered kino. Its dose is from five grains to a scruple. It is used in old diarrhœas.

Sometimes absorbents, as chalk, and aromatics, are used, in combination with opium, in bowel complaints. The *pulvis cretæ compositus cum opio* is a preparation of this kind: forty grains of it contain one grain of opium. The remaining thirty-nine grains consist of chalk, tormentilla, gum arabic, and long pepper.

The *pulvis cornu usti cum opio* of the Pharmacopœia consists of one grain of opium and nine grains of a mixture of burnt hartshorn and cochineal: the first is used to divide the opium, the latter to colour the compound.

The *confectio opii* consists of opium and various aromatics (long pepper, ginger root, and carraway seeds), with a little tragacanth and syrup. Thirty-six grains contain one grain of opium. It is used principally in diarrhœas; the dose being from ten grains to half a drachm.

2. *Preparations by watery solution.* — A *watery infusion of opium* is not officinal: it is said to be free from some of the objectionable properties of opium. We have, however, a watery *extract of opium*, which is given in doses of from one grain to five.

Some years since, Mr. Battley informed me that in the manufacture of the *liquor opii sedativus* which bears his name, the only ingredients employed were opium, water, and heat. It contains less meconic acid than the common tincture of opium. Whether this and some other substances are got rid of by successive evaporations and solutions, I know not.

3. *Preparations by spirituous solution.* — The well-known *tinctura opii*, or *laudanum*, is prepared by digesting opium in proof spirit. Nineteen minims contain about one grain of opium. Its dose is from ten minims to a drachm, or even more than that, according to the object we have in view in employing it. The *vinum opii* is a solution of the watery extract in weak spirit, to which cinnamon and cloves have been added. It is much weaker than the tincture. The *tinctura camphoræ composita* contains opium, camphor, and benzoic acid, dissolved in proof spirit. Four fluid drachms contain a grain of opium. The dose is from one to three drachms.

4. *Preparations by acid solution.*—The *black drop* is a preparation of this kind. It is prepared by boiling opium in verjuice (the juice of the wild crab), and adding nutmegs and saffron. It has long been regarded as operating more efficaciously than the tincture of opium, in consequence of its not causing headache and other distressing symptoms. Dr. Porter, of Bristol, has proposed a *solution of opium in citric acid*, but it has never come into general use.

Effects and Uses of Morphia and its Salts.

It appears that the action of the morphitic salts is of the same kind as that of uncombined morphia, though the degree of effect is different.

Effects on animals.—Charvet has examined the effects of morphia on the different classes of vertebrated and invertebrated animals, and observes, they are very similar to those of opium. In the upper classes (mammals and birds) some differences of operation, however, are observed.

Effects on man.—(*a.*) *In small doses*, as from a quarter of a grain to a grain of the acetate of morphia, the following symptoms are observed:—A sensation of fulness about the head, disturbed vision, headache,

giddiness, and somnolency; but there is rarely tranquil sleep. The pupils are usually contracted, though sometimes they are dilated, and occasionally are natural. The pulse is generally slow and small, though sometimes it is more frequent, and occasionally is soft and full. Oftentimes there is itching of the skin, and now and then an eruption.

When the dose is somewhat larger, a grain for example, irritation of stomach is sometimes manifested by eructations and nausea; and in men, a difficulty is experienced of evacuating the contents of the urinary bladder. The secondary effects are loss of appetite, feebleness, and constipation.

(*b.*) *In fatal doses.* — When poisonous quantities of morphia, or its salts, are taken, the stomach is sometimes irritated; but this effect is soon followed by great disorder of the cerebro spinal system, and which ultimately assumes an apoplectic character. The sight becomes dim, excessive weakness is experienced, gradually all consciousness is lost, and coma supervenes, attended with contracted, or sometimes with dilated pupils, coldness of the surface, frequent and small pulse, hurried stertorous respiration, and occasionally with convulsions. Before insensibility comes on, as well as when it is subsiding, there is itching of the skin. Difficulty in passing the water is also experienced, in consequence of the paralysed state of the bladder. Not unfrequently, lividity of skin is observed.

Uses.—Morphia and its salts have been employed as substitutes for opium, in the belief that their use is attended with less disagreeable effects. On this point, however, practitioners are much divided in opinion.

Dose.—Morphia or its salts may be given in doses of from one-eighth of a grain to two grains, in the form either of pill or of solution.

Antidotes.—The treatment of poisoning by morphia and its salts is similar to that for opium.

MALVACEÆ.

This family contains only two officinal plants, Malva sylvestris and Althæa officinalis.

1. *Malva sylvestris.*

This is an indigenous perennial, belonging to *Monodelphia Polyandria* of the Linnæan arrangement. The whole plant is mucilaginous. A decoction of the leaves is taken as an emollient and demulcent drink in irritation of the alimentary canal, and of the pulmonary and urinary organs. In tenesmus it is used in the form of clyster. In external inflammation, emollient fomentations and cataplasms of mallow are sometimes employed.

2. *Althæa officinalis.*

This also is an indigenous perennial belonging to *Monodelphia Polyandria*, and, like the mallow, is highly mucilaginous. A decoction of the plant and root is employed with the same effects, and in the same cases, as the malva. In the Pharmacopœia there is a *syrup of marshmallow* prepared from a decoction of the root. It is used as a demulcent for children.

CRUCIFERÆ.

This is one of the most natural families of the whole vegetable kingdom.

Botanical characters. — The stems are almost always herbaceous, with alternate leaves. Flowers regular, hermaphrodite; sepals four, cruciate; petals four, cruciate, alternate with the sepals, sometimes abortive. Stamina six, four long

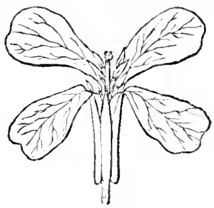

Fig. 125.—*Raphanus sativus* (*example of a Cruciferous flower.*)

and two short, (hence said to be tetradynamous): between the stamina and the petals are small green glands. The ovary is superior, unilocular, with parietal placentæ; the style is elongated when the ovary is short: stigmas, two. The fruit is a siliqua, or a silicula; seeds exalbumi-

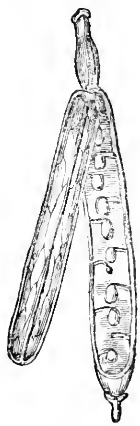

Fig. 126.—*Siliqua.*

nous; the embryo with a folded radicle, and usually with only two cotyledons.

Chemical properties.—Nitrogen is found in this family in an unusual quantity; and, in consequence, when cruciferous plants are rotting, they evolve ammonia and the odour of putrefying animal matter, and from this circumstance they were formerly termed *alcalescent plants.* They yield an acrid, vesicating, volatile oil, in which is found sulphur. This elementary substance, however, probably exists as a constituent of either sulphocyanic acid or sinapine. In some cruciferæ we find a bitter principle; and from the genus Isatis is procured a blue colouring matter. The seeds contain

FIG. 127.—*Isatis tinctoria.*

a quantity of fixed oil, and, in addition, they oftentimes yield an acrid volatile oil, as in the case of mustard-seed.

Physiological effects. — Cruciferæ possess in a greater or less degree acrid and stimulating properties: these they owe to the acrid volatile oil already alluded to. The purgative property of Cakile maritima probably depends on an excess of this acridity. In some cruciferous plants this oil is met with in comparatively small proportion, while a considerable quantity of mucilaginous, saccharine, and extractive matter is found; in consequence of which we use them as articles of food. The volatile oil of cruciferæ becomes absorbed, and in some cases may be detected by its odour in the secretions. It acts as a stimulant to the nervous and vascular systems, and to the secreting organs (at least to the skin and kidneys). Cheiranthus lividus is said to be dangerous to goats; while Lepidium piscidium, we are told, stupifies fish; in consequence of which, this plant is used as a substitute for Cocculus indicus. Further evidence, however, is required to prove these assertions. With these doubtful exceptions, none of the cruciferæ are poisonous.

Uses.—Cruciferæ are useful as articles of food (cabbages, turnips, and radishes, for example), as condiments, and as medicines. They have long been celebrated as preventives for scurvy, and have, in consequence, acquired the name of *antiscorbutics.*

1. *Cardamine pratensis.*

This is an indigenous, officinal, cruciferous plant, belonging to *Tetradynamia Siliquosæ*, and which has been a popular remedy for epilepsy, especially of children. Any activity which it may possess depends on the contained volatile oil and extractive. It is said to be stimulant, diaphoretic, and diuretic. The dried flowers are given in doses of two or three drachms.

2. *Cochlearia Armoracia.*

Horse-radish requires but slight notice. It is an indigenous plant belonging to *Tetradynamia Siliculosæ* of Linnæus. The root owes its powerfully acrid and pungent properties to a volatile oil (*oleum Armoraciæ*), which may be obtained by the distillation of the root with water: it is of a dark yellow colour, heavier than water, and soluble in spirit of wine. Scraped into shreds, the root is used as a condiment, and, medicinally, it may be employed as a powerful masticatory, as a rubefacient, or as a stimulant. In the Pharmacopœia we have a *spiritus armoraciæ compositus*, prepared by digesting horse-radish root, orange-peel, and nutmegs, in a dilute spirit, and then distilling. It is a stimulating liquid, and may be exhibited in doses of two or three drachms. There is also a *compound infusion of horse-radish.* It is prepared by digesting horse-radish root and mustard seeds in water, and adding some compound spirit of horse-radish. It is a stimulant, and may be given to the extent of one or two ounces as a dose. An infusion of horse-radish becomes tinged reddish-yellow by the persalts of iron, in consequence, probably, of the presence of a small portion of sinapine, or some analogous compound.

3. *Sinapis nigra.*

Black or common mustard is another indigenous plant belonging to *Tetradynamia Siliquosæ* of Linnæus. It is chiefly cultivated in the counties of Durham and York. The seeds are small, roundish, beautifully veined externally, and usually of a reddish or blackish-brown colour, though sometimes whitish: internally they are yellow. They are inodorous, but have an acrid, bitter, oleaginous taste. Three of their constituents deserve separate notice.

Fig. 128.—(*a.*) *Sinapis alba.*
(*b.*) *Sinapis nigra.*

1. *Fixed oil of black mustard.*—By compression, 100 lbs. of black mustard-seed yield about 20 lbs. of fixed oil—the *oleum sinapeos* of some authors. It has a brownish yellow colour, a faint odour of mustard, and a mild oily taste. It does not easily become rancid. Mesue is said to have applied it to chronic tumors as a resolvent. Boerhaave administered it in doses of one or two ounces as a purgative. Julia Fontanelle says it is as useful as castor oil for expelling worms. The marc, or cake left behind after the extraction of this fixed oil, is more pungent than the unpressed seeds. If heat be employed in the expression the oil becomes somewhat acrid, and when taken internally is apt to gripe.

2. *Volatile oil of black mustard.* (*a.*) *Preparation.*—This is prepared by distilling the seeds of black mustard reduced to powder with water.

(*b.*) *Theory of its production.*—This oil is said not to exist ready formed in the seeds; for they emit no odour of it when bruised, neither do they yield any oil when digested in alcohol or æther, although these are solvents for the oil. On the other hand, the addition of water to the powdered seeds causes the oil to be almost instantaneously formed, and it may then be readily separated by distillation. If sulphuric acid, or carbonate of potash, be added to the water, the formation of this oil is checked. Guibourt says, acetic acid has a similar influence.

(*c.*) *Properties.*—It has a yellow colour, an odour as penetrating as that of ammonia, and a most powerful and burning taste. It is heavier than water; is slightly soluble in water, to which it communicates its taste and smell; and is very soluble in alcohol. It checks the vinous fermentation.

(*d.*) *Composition.*—This oil, according to Dumas and Pelouze, consists of—

Carbon	49·84
Hydrogen	5·09
Nitrogen	14·41
Sulphur	20·48
Oxygen	10·18
	100·00

These numbers correspond very nearly to the following atomic proportions:—

Carbon, 8 atoms	8×6	48
Hydrogen, 5 atoms		5
Nitrogen, 1 atom		14
Sulphur, 1¼		20
Oxygen, 1¼		10
		97

The difficulty of the quarters of atoms is got over by multiplying the numbers by four; but in order to show the student the relation between the experimental and calculated proportions, I have allowed the quarters of the atoms to remain.

(*e.*) *Effects.*—Applied to the skin, it acts as a vesicant. Its watery solution is also powerfully rubefacient

(*f.*) *Uses.*—This oil has been proposed as a rubefacient in paralysis, and as a vesicant. The distilled water of mustard has been used against the itch.

3. *Sinapine*, or *sulpho-sinapisine.* — This substance was at first thought by Henry, Jun., and Garrot, to possess acid properties, and it was in consequence termed *sulpho-sinapic acid.* But Pelouze having asserted that mustard contained sulpho-cyanuret of calcium, and that sulpho-sinapic acid was in fact sulphocyanic acid, Henry and Garrot undertook a fresh examination of it, the result of which was, that mustard did not contain a sulpho-cyanuret, and that the substance which they had before supposed to be an acid was in fact a neutral crystalline body, which they termed sulpho-sinapisine, and which Berzelius has denominated sinapine. They, however, admit, that by the action of certain acids, oxides, and salts, on it, sulpho-cyanic acid is readily formed. Here is the composition of sinapine:—

Carbon	57·920
Hydrogen	7·795
Nitrogen	4·910
Sulphur	9·657
Oxygen	19·688
	100·000

Further information is required respecting the nature of sinapine; and I confess I still suspect the presence of either sulpho-cyanogen or sulpho-cyanic acid. This also seems to be the

opinion of Berzelius, who says, "it is very probable that sinapine, having a composition analogous to that of certain æthers, may really contain hydro-sulphocyanic acid." One fact is certain, that infusion of mustard reacts on some of the metallic salts (the persalts of iron, for example), like a solution of this acid. When speaking of meconic acid, I alluded to this.

Effects of mustard.—Mustard is a powerful acrid substance. Its irritant properties it derives from the acrid volatile oil which it yields on the application of water. Mustard cataplasms, applied to the skin, produce inflammation, and even vesication, if applied for a sufficient time. The irritant action on the eyes, of the vapour arising from a mixture of hot water and mustard, is well known. Taken in moderate quantity with the food, it stimulates the stomach, and assists the digestion of substances usually regarded as not readily digestible. Swallowed in larger quantities, it acts as an emetic, and by repetition gives rise to inflammation of the stomach. The constitutional effects of mustard are stimulant: it quickens the pulse, and promotes the secretions and exhalations.

Use.—Flour of mustard is sometimes employed as an emetic in narcotic poisoning, as well as in malignant cholera. The dose is one table-spoonful in a tumblerful of water. It is frequently made into a cataplasm (called a *sinapism*), and applied to the skin as a local irritant. Thus, in apoplexy and other affections of the brain, mustard poultices are applied to the feet; in pulmonary and cardiac diseases they are occasionally applied to the chest. The *cataplasma sinapis* of the Pharmacopœia is prepared by mixing hot vinegar with equal parts of flour of mustard and linseed meal. However, crumb of bread may often be conveniently substituted for linseed meal, and hot water for the vinegar. Indeed, if the statement of Guibourt be correct, that vinegar checks the formation of the acrid oil, water is preferable.

4. *Sinapis alba.*

White mustard is cultivated in the county of Kent. The seeds are larger than those of black mustard, and are yellow externally; their chemical constituents are, I believe, the same as those of the latter species, and their action on the animal economy is, therefore, similar, though somewhat less powerful. Swallowed whole they have been recommended as a stomachic, purgative, and diuretic, in cases of dyspepsia occurring in leucophlegmatic constitutions: the dose is two or three tea-spoonfuls. Their use, however, is not quite free from danger; for if they got into the appendix cæci they might bring on fatal enteritis. Mr. J. L. Wheeler, in his Catalogue of Medical Plants cultivated in the Chelsea Garden, states he has known the seeds retained in the bowels for seven weeks.

MYRISTACEÆ.

The plants of this family are apetalous dicotyledons, having unisexual flowers, a three-lobed calyx, a superior ovary, and a ruminated albumen. The only officinal plant is the

Myristica moschata.

The nutmeg tree is a native of the Mollucca isles, and by Linnæus was placed in *Diœcia Monodelphia*; but Sprengel places it in *Monodelphia Octandria.*

Fig. 129.—*Myristica moschata.*

The *fruit* is pyriform, smooth externally, about the size of our peach, and is marked externally by a longitudinal groove. The pericarp is fleshy, and as it becomes ripe and dry, it opens into two nearly equal longitudinal valves, exposing the nucleus surrounded by its arillus.

This *arillus*, usually denominated *mace*, is an expansion or unusual development of the funiculus or umbilical cord: it is large, fleshy, and branching; in the recent state of a scarlet colour, but when dried becomes yellowish, brittle, and somewhat horny.

Fig. 130.—*Nutmeg surrounded by its arillus, or mace.*

The *nucleus* or *nut* is placed within the mace; its shape is oval or ovate. The external portion of the nucleus is formed by a dark-brown, hard, glossy coat (*testa* or *tunica externa*), usually called the *shell*. In the nutmegs of commerce this is generally absent, though occasionally we meet with it, and the seeds are then called *nutmegs in the shell*. The outer part of this coat is marked by the mace. Immediately within the testa is the seed (the nutmeg as usually met with in the shops), covered by a thin, light brown, spongy integument (*endopleura* or *tunica interna*), which dips down into the substance of the albumen, giving it a marbled appearance, technically termed *ruminated*. The great body of the nutmeg consists of the oleaginous albumen, which, when cut across, has a veined or marbled appearance; but these so-called veins consist of a reddish-brown cellular tissue abounding in oil, and are, in fact, nothing more than processes of the endopleura, as already mentioned. At the base of the albumen is the embryo, composed of an inferior hemispherical radicle, two large foliaceous fan-shaped cotyledons, and a plumula of two lobes.

Chemical properties.—(*a.*) *Of mace.*—By distillation with water mace yields a volatile oil (*oleum macis*), of a pale yellow colour, having the taste and odour of mace, and being lighter than water. Mace also contains two kinds of fixed oil, both of which are soluble in æther, but one only is soluble in spirit. In addition to these substances, mace contains about one-third of its weight of a gummy kind of starch, besides some ligneous fibre.

(*b.*) *Of nutmegs.*—These, like mace, contain a volatile oil, (*oleum nucis moschatæ distillatum*) which may be procured by distillation with water: it has a light yellow colour, and the odour and taste of the nutmeg. By keeping it deposits some crystals, which appear to be a kind of stearoptène, called by John *Myristicine*. Nutmegs contain also a fixed solid oil, composed of stearine and elaine. In commerce we meet with a solid called *oleum macis expressum*, but which ought to be termed *oleum nucis mochatæ expressum*. It is prepared by beating the nutmegs to a paste, enclosing them in a bag, then exposing them to the vapor of water, and afterwards expressing the oil by heated plates. It occurs in cakes, (covered with some monocotyledonous leaves) having the shape of bricks, but whose size is somewhat smaller. It is a mixture of the fixed and the volatile oil of nutmegs. Besides these principles, nutmegs contain starch, gum, and ligneous fibre.

Physiological effects.—*Of nutmegs and mace.*—The activity of mace and nutmegs depends on the volatile oil, which renders them stimulant. Taken into the stomach, they promote the appetite, and assist digestion; hence their use as condiments. In moderate quantity, used as medicines, they relieve flatulency, and allay colicky pains. In large quantities they excite the circulation, and act as narcotics,—at least the latter effect is produced by nutmegs, and probably also by mace. Several writers have testified to the narcotic operation of nutmegs; but one of the most satisfactory cases recorded, is that mentioned by Dr. Cullen, in which two drachms of powdered nutmegs produced drowsiness, which gradually increased to complete stupor and insensibility. The patient continued for several hours alternately delirious and sleeping, but ultimately recovered. Another confirmatory case has been mentioned to me by a medical friend, of a lady who has frequently experienced the narcotic operation of nutmegs.

Uses.—The use of nutmegs and mace in domestic economy is well known. They are employed partly for their flavour, partly for their stimulating effects on the stomach. When food is highly seasoned with nutmegs, doubtless some effect must be produced on the nervous system; and, therefore, it is advisable that persons disposed to apoplexy should avoid the use of them.

In a medical point of view we employ both nutmegs and mace, partly for their flavour, and partly for their stimulant properties. The only officinal preparation is the *spiritus myristicæ*, prepared by distilling nutmegs with a dilute spirit. This spirit is one of the constituents of the mistura ferri composita. Nutmegs enter into the composition of the compound spirit of horse-radish, compound spirit of lavender, and aromatic confection.

In mild cases of diarrhœa I frequently employ nutmeg as a substitute for opium. Unless otherwise contra-indicated, it may be taken in a little warm brandy and water.

Male or Wild Nutmegs.

Besides the usual nutmeg of commerce, we sometimes meet with another kind, in the shell, about the size and shape of dates. Within the last year I have observed them frequently in the shop windows in this metropolis. They were formerly called *male* or *wild nutmegs*, and are referred by some to the *Myristica tomentosa*, by others to the *M. moschata*, var. *sphenocarpa*, Dierbach.

SKETCH

OF

THE COMPARATIVE ANATOMY OF THE NERVOUS SYSTEM;

With Remarks on its Development in the Human Embryo.

By John Anderson, M.E.S.
Hon. Fellow of the Physical Society of Guy's Hospital.

[Continued from p. 869.]

Articulata.—In taking a general survey of the structure of the articulated animals, we observe that their body is divided into a certain definite number of segments, each one of which may be considered as a repetition of the other; of these, the most anterior acquires the greatest development, and is called the head. So in examining their nervous system, we shall find that a primary nervous ring (formed of a ganglion and two semi-circular radiating nerves) is contained in each segment. This ring, no longer closed, as in the preceding classes, but open, varies in degree of development, according as the segment which incloses it is in a high or low degree of development: thus, in the cephalic segment, or head, we shall always find developed a cerebral or supra-œsophageal ganglion; and, inasmuch as when a true nervous system was first formed—was first separated from the punctiform homogeneous mass of the gelatinous acrita—commissures were found uniting the primary masses of medullary substance (as we saw in the Asterias), so ought we to find, in the Articulata, commissures uniting the primary nervous rings; which latter are now become longitudinal, and the commissures of the nervous ring itself are now become radiating nerves. We ought also to find that these commissures depend, in degree of development and in situation, on the same characters of the primary nervous ring, and consequently on the ganglia thereon developed.

We may next ask, what will mark the high or low degree of organization of a nervous system composed of several primary nervous rings? The researches of philosophical anatomy inform us, that, first, a low degree will be characterized by an *undetermined* number of those rings—by a nearly equal development of the whole, and by the central mass of nervous matter accumulated on them being situated on the ventral surface of the animal. Secondly, a higher degree of organization exists when the primary nervous rings are repeated in a determined manner—when some of them predominate in development over the others, and their central medullary masses, or ganglions, are situated on the dorsal aspect of the animal. Again, as regards the uniting commissures, these will, of course, depend, in degree of development, on the organization of the ganglions united by them; and the more perfect and the more intimate is the connexion established by these commissures, the more highly organized is the nervous system.

In the Articulata about to be described, we shall always find the most anterior nervous ring developing a ganglion on its superior surface — a true cerebral ganglion. We shall find this nervous ring repeated in the other segments of the body, but in a much more imperfect manner, for ganglions are developed only on the ventral surface of the animal; and from this latter circumstance, they, as well as their commissures, cannot be highly developed.

Let us now pass to the *Entozoa.*—In the lower forms of Entozoa, as in the tænia and cysticercus, no nervous system is discoverable. These animals consist of a gelatinous, more or less homogeneous mass, in which no distinct nervous system exists: here, then, we are again commencing a large circular group, as it were, and in nearly the same manner. In the Distoma hepaticum, the nervous system consists, according to Bojanus *, of a nervous collar, or ring, with two lateral ganglions entwining the œsophagus, and two nerves which are distributed on the posterior part of the body. In the Ascaris lumbricoides, I found the nervous system to consist of a thin double filament, without ganglia, situated in the median line of the abdomen, which separated, to inclose the opening of the vulva and to encompass the œsophagus at the lower part of the mouth. In the Strongylus gigas, according to Otto †, the median nervous filament consists of very closely approximated ganglia, thus advancing a step higher in organiza-

* Isis, 1821, vol. i. p. 168.
† Berliner Magazin, 1814, p. 178.

tion, and approaching to the character of the true articulated classes.

Rotifera. — In the next class, the Rotifera, minute microscopic animals, Ehrenberg has discovered and described a rather complex nervous organization; sufficiently so to justify their being ranked thus high in the scale of animated beings *. In the Hydatina senta, according to this anatomist, the nervous system consists of two closely approximated filaments running along the abdomen, and giving off lateral branches in their course forwards: arrived at the anterior part of the body, these nerves form a large ganglion, and then ascend to embrace the œsophagus in the form of a ring, on which minute ganglia are developed, giving off numerous filaments to the surrounding parts. There are four of these lateral ganglia, besides the large supra-œsophageal ganglion.

Cirrhopoda.—In the Cirrhopoda, the abdominal nervous cords have regular ganglia developed on them, and there is a nervous collar round the œsophagus, as in the preceding classes. Cuvier observes †, that in a species of Lepas he found two nervous cords situated on the ventral surface of the body, with five double ganglia developed on them, from which were given off lateral filaments to supply the curled feet. Anteriorly, and at the lower part of the mouth, these cords separated more widely, to encircle the œsophagus, above which they developed a quadrilobate ganglion, from which were given off four nerves to the viscera and muscles.

Annelides.—The nervous system of the Annelides consists of a varied number of ganglia, united by double longitudinal commissures, running along the ventral surface of the body, from which lateral filaments are given off. There is also a supra-œsophageal ganglion, which being connected, by lateral nervous cords, with the first pair of infra-œsophageal ganglia, form a ring, or collar, surrounding the œsophagus: this we at once recognize as the most anterior of the column of primary nervous rings, with the ganglion developed on its superior surface. I have examined the nervous system in the genera Lumbricus, Aphrodita, and Hirudo; the general plan was the same in all. In the Lumbricus terrestris, or common earth-worm, a nervous cord passed along the whole ventral surface of the animal, and presented, in a small species, the appearance of an irregular white line; the structure of which, when viewed under a lens, appeared to consist of a number of closely approximated nervous threads. In a larger species, the nervous cord had a more jointed, knotted appearance, and its structure was more homogeneous; the ganglia were, however, but very imperfectly developed, for, at each segment of the body of the worm, the nervous cord only offered an enlargement, or swelling, of rather an elongated form: the first or most anterior of these (the infra-œsophageal ganglion) was the largest. These enlargements were more closely approximated towards the anterior part of the body; from each of them were given off two pair of nerves, one passing to the right, the other to the left, to supply the integuments. From the more attenuated intervening portions of the cord, a single pair of filaments was given off; these filaments we at once recognize as the commissures of the nervous ring of the Radiata and Mollusca; they pass round the body and approach each other on the dorsal surface, but do not unite: in this way is an open nervous ring formed. The infra-œsophageal ganglion before mentioned diverged at its anterior part, sent upwards two lateral nervous cords, which developed a large bilobate cerebral or supra-œsophageal ganglion, of a transversely elongated oval form, thus forming a distinct nervous ring, embracing the œsophagus. From the angles formed by the divergence of the infra-œsophageal ganglia, a nerve of rather firm texture was given off; another filament had its origin from the lateral and ascending portions of the nervous collar; and from the cerebral ganglion two pair of nerves passed forwards to supply the parts about the head. In the Aphrodita, a marine animal, the nervous cord had a more flattened appearance: it was about equal in width throughout its whole length, and presented similar enlargements in its course, from which nerves were given off, as in the Lumbricus; no nerve, however, arose from the intervening spaces. In the Leech, the abdominal nervous cord was surrounded by several delicate vessels, and at the anterior part of the commissures were distinctly seen

* Organisation Systematik der Infusions-Thierchen, Berlin, 1830.

† Anat. des Mollusques.

to be composed of two separated columns: the ganglia were very distinct, of a round form, and twenty-four in number,—the last four or five were more closely approximated; from each were given off two diverging pair of lateral filaments, which passed to supply the muscles and viscera. The cerebral ganglion presented nothing remarkable.

We next pass to the examination of the Entomoid Articulata, in which we shall find the cerebral ganglion becoming more and more developed, and the ventral ganglia more determined as to number, and more concentrated as to situation; their longitudinal commissures also will be shewn to possess two distinct nervous tracts, to be composed of motor and sensitive columns, giving origin to nerves having sentient and motiferous properties.

Crustacea.—In the lowest of them, the Crustacea, the nervous system presents numerous forms and degrees of organization. In the common Talitrus, an inferior genus, it consists of a regular series of ganglia, developed at an equal distance from each other, united by two distinctly separated longitudinal cords, from which are given off transverse nerves. I have found the same arrangement in the genus Oniscus, in which also a close analogy to the nervous system of the Annelides was apparent. In the Cymothoa, an animal a little higher in the scale, these longitudinal columns have become closely approximated, and the ganglia have coalesced transversely. Rising higher in the scale, we find a still greater degree of concentration and coalescence in the Decapoda, this being directed to two principal points—the thorax in the long-tailed Decapods, and the thorax and abdomen in the short-tailed ones. With regard to the former, I have examined the nervous system in the genera Crangon, Processa, and Pagurus, in all of which it presented a similarity in development. In the lengthened abdomen the longitudinal cords were very closely approximated, and the ganglia developed were nearly of an equal size, and equi-distant from each other; from them were given off transverse nerves. In the thorax, the ganglia were very closely approximated, indeed, longitudinally, so as nearly to have the appearance of one nervous mass, from which were given off large transverse nerves to the neighbouring parts, and from the anterior part of which there passed off two long nervous cords, which encircled the œsophagus, and developed a ganglion on its superior part. In the short-tailed Decapods, as in the common edible crab, the abdominal ganglia have coalesced into one large nervous mass, from which radiate nerves to the legs, &c.; from its anterior part there pass two long filaments, connecting it with the coalesced ganglia in the thorax. There is a supra-œsophageal ganglion, as in the preceding, but it is comparatively small.

Myriapoda.—Amongst the Myriapoda, the next class, we find the nervous system again beginning by a low state of organization, similar to the lower Crustacea, this being principally characterized by a considerable number of ganglions. In the Scolopendra morsitans, I found the nervous system to consist of a series of twenty-one double ganglia, situated on the ventral surface of the body, connected by intervening distinctly double longitudinal cords. From each ganglion were given off lateral nerves to supply the neighbouring muscles, viscera, and feet. These ganglia were nearly all equal in size excepting the first, which was the largest, and from which were given off additional nerves to supply the maxillæ, &c. Beyond this first sub-œsophageal ganglion, and from its anterior part, proceeded the longitudinal connecting cords, which diverged to encircle the œsophagus, above which they met, and developed a bilobate supra-œsophageal ganglion.

Arachnida.—In the Arachnida the nervous system is more concentrated, and the ganglia are fewer; they may be considered, indeed, as intermediate in the development of this system between the Insecta and Crustacea. In the Scorpions, according to Dr. Grant*, "the ganglia of the trunk have formed one large nervous mass, from which all the nerves of the legs and the surrounding parts take their rise as from a single ganglion." The cerebral ganglion is comparatively small, and, according to Cuvier and Carus†, the two nervous cords, proceeding thence, unite at intervals to form seven ganglions, the last of which belongs to the tail. Grant observes‡, that the motor column is very loosely connected with the two inferior

* Lectures on Comparative Anatomy.
† Op. cit.
‡ Op. cit.

or sensitive columns, particularly in the region of the abdomen, and that this conformation is more obvious here than in any other of the Articulata. In the true spiders, the nervous system consists of a small cerebral ganglion, giving off nerves to supply the parts about the mouth, and of two concentrated medullary masses, situated in the thorax and abdomen, united by two long commissures; the former of these gives off four pairs of nerves to the feet; the latter, nerves to the intestines, the pulmonary sacs, and the genital organs.

Insecta.—We have now to examine the last and highest class of articulated animals—the Insecta, in which we shall find the nervous system very highly organized, leading us by strict analogies to the Vertebrata. I have found it to consist, in almost every order, of a ganglionic nervous cord, running along the abdominal surface, as in the preceding classes, and of a similar supra-œsophageal nervous mass, called by Cuvier the brain, from which are given off eight pairs of nerves and two single ones. This nervous cord consists of a varied number of ganglia, giving off lateral nervous filaments, and connected to each other by longitudinal sensitive columns. A motor tract has also been recently described by Mr. Newport *, passing along the dorsal surface of these columns, and giving off lateral nervous branches. Minute anatomy has also unfolded to us what may be considered as the analogue of the respiratory system of nerves, and a par vagum. These points I will now notice in detail, commencing with the Hemipterous Insecta, in which the nervous system is most lowly organized. In the perfect state of the Ranatra linearis, I found it to consist (besides the supra-œsophageal nervous accumulata) of a small round ganglion, situated below the œsophagus at its very commencement; from this two longitudinal commissures passed, to join with a large quadrilobate ganglion, situated at the further extremity of the thorax. From each side of this ganglion there were given off three nervous threads, passing superiorly, transversely, and inferiorly; and from the lower part of the ganglion, which was slightly fusiform in shape, were given off two bundles of most minute and delicate nervous filaments, each containing five branches, which passed downwards into the lenghtened abdomen to supply the parts situated in that region; there is also a supra-œsophageal nervous accumulation. In the Orthoptera the nervous system presents a certain degree of concentration worthy of notice. In the perfect state of a species of Acrydium I found two comparatively large thoracic ganglia, very near each other, and connected, as usual, by commissures; in the abdomen there were five ganglia of much smaller size, connected in a similar manner, and giving off lateral filaments: the first and second of these abdominal ganglia were some distance from each other; the three last were much more closely approximated, and were rather larger and more distinct; the cerebral ganglion was of small size.

Proceeding with the Coleoptera, we find that many of the Lamellicornes, in their perfect state, have a singular and rather unusual mode of development of their nervous system; the ganglia are but few in number, closely approximated, and the two posterior ones give off numerous radiating filaments: this is the case with the larva of the Oryctes nasicornis, according to a dissection by Swammerdam *. In the Geotrupes stercorarius, (perfect state) another of the Lamellicornes, I found in the thorax two distinctly bilobate ganglia, connected by longitudinal commissures, and one smaller ganglion at the junction of the thorax with the abdomen, immediately contiguous with which which were one large and three smaller ganglia, very closely approximated to each other; the last was the longest, of rather a fusiform-shape, and gave off radiating nervous filaments, particularly two long branches to the abdominal viscera and adjacent parts. The more usual form, however, of the nervous system, is such as I shall describe in the subsequent species. In the larva of Dyticus marginalis I found the nervous system to consist of a distinctly bilobate supra-œsophageal ganglion, from which were given off nerves for the antennæ, palpi, &c., and of twelve abdominal ganglia, connected by longitudinal cords: the difference in distance of these ganglia was very remarkable, and worthy of mention. The first, or true infra-œsophageal ganglion, was situated as

* Philosophical Transactions for 1832 and 1834.

* Biblia Naturæ.

usual; between this and the second a long space intervened, and the connecting cords were firm and distinct; the spaces between the second, third, fourth, and fifth, were about equal, and not more than one-third the distance between the first described; the remaining seven were so closely approximated as to touch each other: from the terminal ganglion were given off long and minute nervous filaments, which I traced down to the caudal extremity of the larva. In the Hymenoptera a very great concentration and increased development of the nervous system is met with. In a species of Apis I found the cerebral ganglion of immense proportional size; it had a distinctly lobate appearance, and a deep fissure traversed it transversely; from its anterior part were given off two nerves, which passed forward to the base of the antennæ, and had their origin marked by a very distinct conical-shaped ganglionic enlargement. In the thorax all the ganglia had coalesced into one central large ganglion, and a smaller one closely attached to it, giving off lateral nervous filaments; in the abdomen there were five smaller ganglia; they were connected by commissures, as in the preceding classes, the double nature of which was distinctly seen by a lens: the first abdominal ganglion was situated at some distance from the thoracic ganglion; the second and third were much nearer together, but the fourth and fifth were quite closely approximated: from them were given off radiating nerves. But the most highly developed nervous system in the Articulata occurs is the Lepidoptera, the characters of which I shall next describe. In the larva of the Saturnia pavonia minor I found the nervous system to consist of a bilobate supra-œsophageal or cerebral ganglion, and of 12 sub-œsophageal or abdominal ganglia, united by longitudinal commissures. The cerebral ganglion consisted of two closely approximated oblong ovate medullary masses, giving off nerves supplying the parts about the head, and one passing backward, the recurrent nerve of Lyonnet; it was supported or produced by two lateral nervous filaments, which, having their origin at its posterior part, passed downwards by the sides of the œsophagus, at the inferior part of which they conveyed, and were connected with, the first sub-œsophageal ganglion; in this way a nervous collar or ring was formed, which encircled the œsophagus. This first inferior ganglion was of rather a quadrilobate form; it gave off a pair of nerves, passing to the lower lip, which had their origin within the termination of the lateral commissures just described. The second ganglion was longitudinally continuous with the first; from them were given off lateral nerves. The motor and sensitive connecting nervous columns were widely separate between the second and third ganglia, and between the third and fourth; between all the others they were very closely approximated, though by a lens the fissure or mark of separation could in some be perceived. The abdominal ganglia were of a lengthened ovoid form; and when reviewed through a lens, had a dense opaque white appearance; two in particular appeared encased as it were in a neurilema, and had a distinctly bilobate appearance; in others there appeared quite a nucleus of opaque nervous matter; from each of them were given off three lateral pairs of nerves, some of which passed to supply the viscera, while others passed round the body of the larva to near the dorsal vessel, thus forming a nervous ring, open superiorly, which being repeated in each segment, and the whole connected by commissures, forms a continuous series at once recognised as a column of primary nervous rings, the type of the nervous system of the articulata; the eleventh and twelfth ganglia were closely joined to each other, and from the latter were given off two radiating pairs of nerves, passing to the caudal extremity of the larva. I have examined the nervous cord in the larva of Pontia brassica, Cossus ligniperda, two species of Arctia, and have found the disposition of the ganglia, &c., to be the same; as the insect, however, advances towards maturity, considerable and important changes take place in the nervous system. Heroldt has described and figured them in the Pontia brassica*, and Mr. Newport has investigated them with the minutest accuracy in the Sphinx ligustri†. I have myself examined the nervous system in the chrysalis of this latter moth, but from its not having been long in this state, very slight change in the nervous system was

* Entwickelungsgeschichte des Schmetterlings.
† Phil. Transactions for 1832 and 1834.

effected. It appears that during the pupa state a contraction of the nervous columns takes place, the ganglia (more particularly the second, third, fourth, and fifth) become approximated; the distance between the cerebral ganglion and the first sub-œsophageal ganglion becomes much less, and the œsophageal ring becomes much smaller; this is preparatory to the subsequent concentration and junction which we find in the perfect insect. When this latter phenomenon takes place, the ganglia just mentioned become consolidated together, and the oval nervous ring is scarcely perceptible: this I found the case in the perfect state of Mormo maura, where also the abdominal ganglia were small, and (owing to the disappearance of two of the thoracic ganglia) were situated at some distance from these latter, which were of large size, and the nervous matter of which they were composed appeared more dense and opaque in its texture.

Vertebrata.—We now pass to the last and highest group, the Vertebrata, where the primary nervous rings of the preceding classes have become ganglions, and their commissures have become primary nervous rings. In each segment of their bodies there is but one ganglion developed, but that one large, and situated on the dorsal aspect, and each one in the different segments is united to the other by commissures, thus forming a large median nervous mass, the primary characteristic of a true cerebral system. This will be, of course, subject to infinite modifications and degrees of organization. In the lower Vertebrata the ganglia and their commissures will be nearly equally developed; in the higher ones the ganglionic formation will predominate; and as these animals are characterized by this predominance of ganglion, *its* great development takes place in that part of their body which is itself the most highly developed, the head, and the ganglionary mass itself, we call the brain. On the contrary, the development of the commissures, or of the longitudinal fibres, takes place in the opposing point to the head, viz. the trunk, and from that results what we call familiarly the spinal marrow. Again, as it is the very characteristic of the nervous matter to accumulate and develop itself on the dorsal aspect in preference, we can easily conceive that as the ganglionic nervous matter, or brain, increases in development, so will it influence the *direction* of the spinal marrow, and, indeed, also of the whole body. Another important point is, the *number* of ganglia and commissures that may be developed. The number of ganglia forming the brain, the most highly organized part of the nervous mass, is definite and invariable, while the number of ganglia forming the spinal cord, the least highly organized part of the nervous mass, is indefinite and variable. The three portions of the cerebral mass, the anterior, median, and posterior, I shall designate by the names of first, second, and third cerebral masses, the utility of which will be seen in the sequel. I shall endeavour to point out the analogies which each of these portions bear in the brains of the different animals, as we ascend the scale, respecting which anatomists have various opinions.

These observations being premised, I pass to the consideration of the vertebrated classes, individually, in the manner proposed, commencing with the lowest, the fishes.

Pisces.—In these animals the nervous system presents an immense variety of forms and degrees of development. Even in the lowest, the Cyclostomata, a division into brain and spinal marrow (in the general acceptation of the terms) is evident: in the former, a division into three is at once seen; in the latter, the ganglia are numerous and undetermined. I will notice these parts separately.

The spinal cord is remarkable for its great relative size in this class of animals: it is continued (with but very few exceptions) the whole length of the vertebral column, even into the caudal vertebræ, and it has on its anterior and posterior aspects a longitudinal fissure, the latter being the deepest; internally it is hollowed out by a canal which traverses it in its whole extent, and which, at the upper part, immediately posterior to or underneath the cerebellum, forms a considerable dilatation or enlargement—the fourth ventricle. In a river lamprey *(Petromyzon fluvialis)*, weighing 570 grains, I found the brain to weigh only four-tenths of a grain, while the spinal cord weighed three grains, the proportions being as 100 : 750. We thus observe how much

the latter preponderates in size, being seven and a half times the heavier than the brain. It was inclosed in a semi-cartilaginous case, and I satisfactorily traced it into the extreme point of the caudal extremity of the animal: it presented a thin flattened appearance, so much so that no trace of a central canal was perceptible; but immediately posterior to the brain, the rudimentary corp. restiformia of the two lateral longitudinal columns diverged to form a large excavation, which was covered over by a net-work of delicate vessels, a sort of plexus choroides; this was the fourth ventricle.

Amongst the true osseous fishes I have found a canal traversing the spinal marrow with this dilatation or ventricle at its superior portion, in the eel *(Anguilla)*, perch *(Perca fluvialis)*, gurnard *(Trigla gurnardus)*, cod *(Gadus morhua)*, mackarel *(Scomber vulgaris)*, pike *(Esox lucius)*, roach *(Leuciscus rutilus)*, dace *(Leuciscus vulgaris)*, chub, carp, and skate. In the gurnard I found six pair of ganglia developed on the superior surface, immediately posterior to the cerebellum, at the origins of the nerves distributed to the large pectoral fins; this remarkable conformation only exists, I believe, in this genus. In all the other species the spinal cord was of nearly equal diameter throughout, excepting towards its termination; and in the dace I traced it running to the extremity of the tail, and ending in a point: in the moon fish *(Tetrodon mola)* it is remarkably short, and terminates in a true cauda equina. The superior portion of the spinal cord, which takes the name of medulla oblongata, I have found large and broad in most fishes: on it are perceptible the corp. pyramidalia and restiformia; the olivaria are not yet developed. The former, situated on either side of the anterior longitudinal groove, are flattened and broad, and are distinctly seen continuous with the crura cerebri, the pons varolii being wanting. The corp. restiformia, or cerebellic fasciculi, are situated posteriorly; they separate (as I have before observed) at their upper part to form the fourth ventricle, and pass afterwards into the cerebellum.

[To be continued.]

OBSERVATIONS

UPON THE PREVAILING PRACTICE OF

FORCIBLY COMPRESSING THE ABDOMEN OF LYING-IN WOMEN.

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To the Editor of the Medical Gazette.

Sir,

Some remarks in a recent number of the Medical Gazette seem to justify the inference, that the use of the bandage, with or without a compress, after delivery, has not met with the attention which it merits. It has, indeed, received very general commendation; but the principles which should regulate its application have nowhere been stated with perspicuity or precision; nor have the consequences which may result from its employment, upon the one hand, or from its omission, upon the other, been minutely, or even accurately, traced.

Your correspondent assures us that the application of the bandage is one of the most important, though one of the most simple, of the duties of the accoucheur; and he is so confident of the injurious results of its inefficient application, that he deprecates in strong terms the practice advocated by an eminent teacher, of leaving the accomplishment of this momentous operation to the nurse.

Practitioners and writers, however, are by no means agreed as to the value of this bandage, the proper period for its application, the mode of adjusting it, the end to be obtained by it, or the immediate or remote effects which it may produce. Some think it essential to the well-doing of the patient; some that its employment is a matter of indifference; some that it is injurious. Some recommend that it should be applied early in the labour, and be gradually tightened as the escape of the liquor amnii, or progressive descent of the child, diminishes the volume of the uterus; some between the delivery of the child and the exclusion of the after-burthen; some immediately after the expulsion of the placenta; some not till hours have elapsed from the completion of the labour; and

some not till after an interval of five or six days. Some, again, apply it so as merely to give comfortable support to the abdominal parietes, but not so tight as to occasion uneasiness; some so as to compress the uterus forcibly, together with the parietes of the abdomen. Some content themselves with merely placing the bandage round the abdomen, leaving it to chance whether it shall retain its form and situation; some secure it in its place, and prevent its being drawn into folds by slips of whalebone; some fix it by a strap, like the thigh-strap of a truss; some fasten it in its position by pinning to it the napkin which protects the vulva (the *chauffoir* of the French); whilst others add a bandage over the shoulders (a sort of *bretelle* or *scapulaire*), to prevent it from slipping downwards.

Authors are not even agreed as to the purpose which the bandage is to serve; some employing it to consult the wishes or the vanity of the patient, who is urgent for its application, that she may preserve her symmetry of form; some to give support to the flaccid parietes of the abdomen, the relaxed condition of which is productive of discomfiture; some to prevent syncope; some to promote that contraction of the uterus which is to preserve the patient from flooding; some to diminish the risk or extent of after-pains; some to protect the patient from the multitudinous ills, the results of sudden alteration in the balance of circulation, to which, besides syncope, inactivity of the uterus and hæmorrhage, the additional evils of inflammations, functional disturbance of the liver and intestines, and even puerperal peritonitis, have been ascribed.

As to the immediate effects of the bandage there has been little dissonance of opinion. All agree that it gives support to the relaxed abdominal parietes; that it thus relieves an uneasy feeling, and tends to obviate the occurrence of syncope; that, if secured with sufficient firmness, and with the addition of a pad, it also compresses the uterus, and that it has thus a tendency to prevent or restrain hæmorrhage. There are, however, other coincident effects which have almost escaped notice; and the remote consequences, as compared with the immediate beneficial effects, seem nowhere to have been considered; although upon these must be founded our estimate of its relative advantages and disadvantages, and, consequently, our determination as to the propriety of having recourse to it, and the mode of applying it.

Having thus briefly sketched the opinions and practice of different writers, it may be, perhaps, not altogether devoid of utility to make a few cursory observations upon some of the points which I have thus hastily surveyed, before I proceed to state the conclusions to which my own experience and observation have led me.

And first, the value of the bandage appears to me to have been greatly overrated. A very large proportion of women in this metropolis manage extremely well without any particular care or nicety in its adjustment: still, of late years, the practice of bandaging has been very generally enforced, and almost without restriction. The commendations, however, which it has received, have been founded rather upon the authority of names than the investigation of principles; and hence the great variety of statements and sentiments upon the subject, to which I have already taken occasion to advert. But there are some illustrious examples of individuals who have ventured to entertain, and entertaining to express, doubts upon a point with regard to which they were not convinced: "rarâ temporum felicitate ubi sentire quæ velis, et quæ sentias dicere liceat." Amongst these may be enumerated Mauriceau, Peu, La Motte, Van Swieten, Levret, and lastly Denman, who uses the following strong language upon the subject. "Some years ago," he says, "it was a general custom to bind the abdomen very tight immediately after delivery, with the view of aiding the contraction of the integuments, and of preserving the shape of the patient. In some countries, India in particular, this was practised to such a degree, that one cannot think without shuddering of the mischief which must of necessity have been very often occasioned. In this country the practice has been very much discountenanced, as useless or pernicious; and it is now wholly or nearly laid aside, except in particular cases which have been already specified, till five or six days after delivery, when a broad band, daily, but very gradually, drawn a little tighter, may be applied not only

without injury, but with some advantage*." Whether the practice of bandaging the abdomen "very tight" deserves this severe censure, may possibly be doubted; but, conceding that in all cases a bandage is admissible, if not necessary, the period of having recourse to it, and the extent of compression to be produced by it, must be determined by the end which it is intended to ensure.

Objects of the Bandage.

It has been seen that the principal object which women have in view in desiring the application of the bandage, is the *preservation of their form;* but, "as for its preserving the woman's shape, it is so far from doing it, that, if it is put on too tight, it will render the belly bigger, by the fluxion of humours it brings upon the part†." That many circumstances combine, after delivery, to produce distension of the abdomen, does not admit of dispute. Its parietes have been long distended by the enlarged uterus; and this effect has probably been greatly increased by flatulency or feculent accumulations, the common consequences of digestive disturbance during pregnancy; want of exertion has at the same time rendered the muscles torpid; and subsequently to labour, the diet, consisting principally of fluid farinaceous substances, may render this distension permanent, unless controlled. To obviate this, then, the bandage may be employed; but it is not essential for this purpose that it should be applied immediately after delivery, or that the compression should be very forcible. It is, perhaps, not necessary to wait, according to the advice of Mauriceau, a whole day before it is applied, if at all, with any degree of firmness; nor is it advisable to defer it, according to the recommendation of Denman, till five or six days have elapsed. It may be applied when the clothes have been changed, and the patient placed comfortably in her bed; and the band should press equally, but at the same time very moderately, over the whole abdomen, avoiding, as unnecessary and pernicious, all pledgets, pads, pillows, cushions, and doubled napkins.

Others, perhaps the majority of practitioners, recommend the employment of the bandage *to relieve the uneasy sensation consequent upon the relaxed condition of the abdominal parietes*, "the woman feeling after delivery as if she was falling into pieces*." For this purpose, again, there can be no necessity for having recourse to the bandage during the labour, as some have advised, or even immediately after delivery; the patient may be allowed some little time to rest; and it will, at all events, be sufficiently early to apply it when the soiled linen is removed from her, and she is placed permanently in her bed. It cannot be required to compress the abdomen very forcibly; the practitioner may well content himself with "bracing the abdomen with a broad bandage applied over the abdomen, with that degree of tension which may yield a sense of grateful support†;" nor should the pressure be made more in any one direction than another; it is uniform, equal, and moderate pressure over the whole abdomen, that alone can give "a comfortable degree of support."

Syncope is another evil, to counteract which, the propriety of employing the bandage is often enforced. This, when unconnected with uterine hæmorrhage, is particularly apt to occur, where great distension from excessive liquor amnii, or a very large child, has been followed by an extremely rapid delivery. This is analogous to what is known to happen after tapping in ascites, arises from the same cause, and requires identical treatment. Van Swieten, with his usual perspicuity and felicity of illustration, at once states the fact, and explains the reason, as far as dropsies are concerned, and uses it as an illustration of our present subject; and Gardien and Velpeau have illustrated the same point by reference to the same facts. In both cases the syncope is the consequence of the altered balance of circulation; by the sudden

* Introduction, Ed. 1816, p. 626.
† De La Motte, by Tomkyns, p. 493.
"Nul doute qu'en s'étranglant l'abdomen avec une serviette pour reduire le volume de leur ventre, et prévenir la formatiou de vergetures ou de rides inevitables, les femmes ne s'exposent aux plus graves dangers, sans courir même aucune chance d'obtenir ce qu'elles cherchent." — Velpeau, Traité de l'art des Accouchemens, tome ii. p. 601.

* Blundell's Obstetricity, p. 725.
† Blundell.

removal of pressure more blood is allowed at once to rush in the direction of the descending vessels, less must go to the great centre of nervous influence, in consequence of the defective supply to which the action of the heart is temporarily suspended, and syncope is the result. But when in tapping "the abdomen was insensibly bound harder and harder with a proper ligature, it appeared from numerous experiments that all the water might be drawn at once from a person in a dropsy, and that this was neither followed by fainting nor syncope. But this likewise obtains after delivery; therefore the same caution is to be observed*." The propriety of having recourse to the bandage in such cases is unquestionable; the pressure should be equal and uniform, so as to give that support to the viscera and vessels within the cavity of the abdomen, of which they have been suddenly deprived; and as, in these instances, the faintness, often accompanied with strong nervous tremblings, generally occurs immediately after the expulsion of the child, the bandage should be at once applied; these cases constituting exceptions to what I believe to be the best general rule, not to apply the band until the clothes in which the patient has been delivered are changed upon getting her into bed. In cases of twins, too, in which the distension is sometimes enormous, the vessels at the sides of the pelvis being so compressed as to occasion œdema and varix at a comparatively early period of pregnancy, syncope is sometimes apt to occur after the birth of the first child, when the expulsion has been rapid; and in such cases Mr. Gaitskell's bandage, which has a series of straps, by which it may be progressively tightened as the abdomen gradually diminishes in size, is a valuable mode of applying the requisite compression, and it should be used before the delivery of the second child: but flannel or coarse calico will answer the purpose, if the patient should not possess that bandage. Even in this peculiar case, however, it is support, rather than forcible and unequal pressure directed over the fundus uteri, that is required, its object being to prevent that sudden alteration in the balance of circulation, which is mischievous, rather than to give tone and energy to the uterine fibres, any violent and unequal compression of which is apt to interfere with the regular, and to produce irregular, contraction of the uterus, and thus to protract the labour.

But the great argument amongst practitioners of the present day in favour of strong compression of the abdomen, or rather of the uterus, after delivery, is founded upon its assumed power *of obviating, or restraining, or preventing the return of flooding*; and such have been the general commendations of the practice for this purpose, that it is almost heretical to doubt its efficacy. The facts, however, in support of this opinion are few, meagre, and unsatisfactory. It is not enough for the advocates of powerful compression to adduce individual instances in which the bandage was applied, and there was no hæmorrhage, which is one of the statements advanced in recommendation of the binder; for the bulk of women in the subordinate ranks of life are attended by women, upon whom little reliance can be placed for its proper adjustment, and who, in point of fact, generally omit it altogether; and yet the average relative mortality from hæmorrhage is not greater, I incline to think less, amongst them, than amongst those of higher station in society, where the attentions of a practitioner abundantly competent to apply the bandage, so as to produce the requisite degree of pressure in the desired direction, can be secured. It is not even sufficient to allege that patients, subject to floodings upon one or more former occasions, when the bandage *was not* applied, happened to be free from it on a subsequent occasion, when it *was* employed. Nothing is more common than for a woman to be subject to hæmorrhage in one labour, and yet to be free from its occurrence in another delivery, although the treatment was identical in both; and this simply from the presence of the cause (whether defective or irregular contraction, upon the one hand, or vascular disturbance, upon the other) in one instance, its absence in another. As well might it be argued, because in some cases women have flooded when the bandage has been duly applied, and escaped that perilous accident when it was omitted—or, to state a stronger fact, when having suspected, in former labours, hæmorrhage to have been the result of irregular contraction, produced

* Van Swieten Comm. in Aph. Boerhav. § 1323.

by forcible compression of the uterus, I have, in a subsequent confinement, directed the omission of the bandage altogether, and the patient has escaped without the occurrence of this formidable accident—that, *therefore*, the bandage is always the cause of flooding, and ought never to be employed. Besides, the binder has no influence upon one of the most frequent causes of flooding after the delivery of the placenta — namely, a turbulent circulation.

Upon the whole, therefore, I have little confidence in the efficacy of bandaging the uterus through the parietes of the abdomen, as a preventive of hæmorrhage; and when flooding has already occurred, it deprives us of the means of satisfactorily ascertaining the condition of the uterus, and seriously interferes with the employment of more appropriate remedies. It is only through the parietes of the abdomen, uncovered by cloths and bandage, that we can recognize if the uterus has contracted, not only firmly and even rigidly, but also equally and regularly. Again and again, therefore, in cases of uterine hæmorrhage to which I have been summoned, the first step required has been to remove this encumbrance. I have then found the uterus, although hard, and even of small dimensions, yet irregular upon its surface, as if thrown into linear folds, or as if the organ were built up of an aggregate of thick cords. With such irregularity of surface, multiplied experience has satisfied me that the patient cannot be considered secure from the occurrence or recurrence of hæmorrhage; and, under such circumstances, that it is unsafe to leave the house. The contraction, in this case, is partial and irregular; it is a diseased condition; and when this ceases, if there be a hurried circulation, with which it is very apt to be associated, the uterus will very frequently yield to the distension, from blood deposited in its interior. But this state of the uterus connot be ascertained even through a bandage covering the abdominal parietes, much less through napkins several times doubled, as now employed by very many practitioners; through the "pillow" recommended by my friend Dr. Blundell, or the "kind of cushion" suggested by Velpeau. These, intended as "pads," or "compresses," upon the summit of the uterus, form a thick cushion, through which the *tactus eruditus* of the most expert and experienced can distinguish nothing. Not only, therefore, are we prevented from detecting the existence of irregular contraction, but the first degree, the very commencement of distension from blood already accumulated within the cavity of the uterus, will probably escape our observation, and much valuable time may be lost before we have recourse to those energetic measures upon which alone reliance can be placed.

As, therefore, the influence of the binder in *preventing* hæmorrhage, is at best equivocal,—as it does not appear that upon the great average more cases of flooding occur where it is omitted than where it is applied,—as there is some ground for suspecting that it occasionally produces, indirectly, the very accident which it is intended to prevent, —as it interferes with our power of discriminating the precise condition of the uterus, and with the application of remedies where hæmorrhage has occurred,—and as, lastly, it is obviously a mechanical irritant of the uterus, already in a state of vascular congestion, perhaps of excitement, and, therefore, prone to inflammation,—it is questionable whether we ought to have recourse to it immediately after delivery, unless where some peculiar circumstances in the individual case appear to demand its application. That it is productive of discomfiture, the reiterated request of patients to have it removed before I have thought it advisable, in instances which appeared to require forcible and continuous pressure of the uterus as the lesser of two evils, affords abundant testimony. When applied so firmly as to produce the required beneficial effect, it interrupts the due descent of the diaphragm; it consequently distresses the breathing, and, at the same time, occasions pain in the direction of the ligamentous and membranous attachments of the uterus, the sustained character of which, as long as the pressure is continued, may be taken as evidence that it does *not* arise from regular contraction of the muscular fibres of the uterus, which, when natural and healthful, is always intermitting in character.

As to *restraining* a hæmorrhage when it has occurred, the bandage, howsoever adroitly applied, is not only not in itself a sufficiently efficacious remedy to justify reliance upon it, but it prevents the application of more powerful reme-

dies. Every practitioner of experience must be aware that pressure combined with friction, or other mode of iterated impulse,—such as grasping the uterus firmly through the parietes of the abdomen,—is infinitely more influential than steady and continuous compression without such subsidiary aid; and, not to multiply authorities unnecessarily upon a point which is scarcely doubtful, I shall content myself with referring, for the corroboration and illustration of this opinion, to two experienced and accomplished physicians, whose writings are well known and duly appreciated by the profession. One of these, the late Dr. Gooch, tells us, "that when hæmorrhage occurs after the removal of the placenta, the quickest way to stop it is to introduce the left hand, closed, within the uterus, apply the right hand, open, to the outside of the abdomen, and then between the two to compress the part where the placenta was attached, and from which chiefly the blood is flowing *. Now, this external, combined with internal pressure, so as to form a sort of tourniquet to the bleeding vessels, cannot be efficaciously employed with a bandage round the abdomen. Whatever may be said of the explanation offered of the efficiency of this practice, and with regard to this Dr. Gooch was not himself very confident, as is clear from his qualified mode of announcing his opinion †, still the practice is useful, and implies either the non-application or the removal of the binder.

The other writer to whom I have alluded is Dr. Collins, whose recent record of the "sixteen thousand, six hundred, and fifty-four births," which occurred in the Dublin Lying-in Hospital whilst he was Master of that magnificent establishment, is a lasting monument of his patience, perseverance, and research. He is a strong advocate for the general employment of the "binder," assuring us, that "when there is a tendency to hæmorrhage, or where the uterus remains relaxed or distended, it is of great utility to have three or four napkins, rolled up as firmly as possible, and placed beneath the binder as a compress; as thus we can increase the pressure to any amount necessary*." But although he speaks thus confidently of the advantages of the bandage under the circumstances he has mentioned, yet he is not ignorant of its defects; for he adds, in another part of his work, "if the discharge be severe, *the binder must be opened*, and the uterus compressed by the hand as much as possible into the cavity of the pelvis;" .... "then, when the womb becomes firm and well contracted, the bandage is to be secured as before directed †." He recommends also the remedy so strongly advocated by Dr. Gooch, and often of unquestionable utility—that of "pouring cold water from a height over the uterine region," which would be useless or impracticable if the bandage and compress still remained upon the abdomen. The shock from the combined influence of the cold and sudden impulse, upon which the beneficial agency of the remedy depends, would be altogether lost. It is clear, therefore, that these distinguished practitioners and writers placed no great reliance upon the bandage as a means of restraining flooding. They did not use it to produce contraction of the uterus, so much as to prevent that organ from again enlarging, when, by other measures, the due degree of contraction had been secured. Even Mr. Ingleby, who strenuously advocates the use of the bandage in general, even before the delivery of the child, in conformity with the recommendation of Gaitskell and Blundell, who thinks that it contributes to the more easy expulsion of the placenta, by preventing the inclination of the uterus over the pelvis, so common where the abdominal parietes are flaccid; who thinks, moreover, that "it opposes a distension of its parietes under an internal effusion of blood;" who says, that in syncope "its application during the attack is highly objectionable," and that in such case, "rather than disturb a woman at such a moment, it will be better to pass a large towel, or broad piece of linen, external to the clothes, and draw it as tight as can be borne,"—which, it must be confessed, if it be not a bandage, is extremely like one; yet, when hæmorrhage has actually occurred, he evidently places very little confidence on it, for, after alleging that

* Gooch on the Diseases of Women, p. 352.

† If I may judge by my feelings, the blood stops, in a great degree, even before the uterus contracts; the hand acts first as a tourniquet, then as a stimulant.—Ibid, p. 353.

* Practical Treatise, p. 123.

† Ibid, p. 153.

in after-hæmorrhages "two leading principles should regulate our practice,—the promotion of uterine contractility, and the maintenance of a tranquil circulation,"—and after having very briefly adverted to refrigerants, ergot, and opium, he adds, "the treatment should also comprise brisk frictions, either with the dry hand or with spirituous applications, rolling the hand over the uterus, pressing, grasping, and moderately squeezing it through the abdominal parietes. Much depends upon the mode in which our manipulations are applied. We should grasp and rub every part of the body and fundus, since the points of placental attachment are quite uncertain. The uterus, under friction, usually hardens, so as to expel any liquid blood or moderately sized coagulum which may occupy its cavity. But since the organ may again relax, even under the pressure of the hand, the friction should be diligently persevered in, and continued after the contractions appear to be permanently secured*." It is impossible not to coincide with the author in these very judicious remarks, with regard to which it is only necessary to observe, that the employment of these means implies the absence of the bandage, with which they are altogether incompatible.

[To be continued.]

INJURIES OF THE ELBOW-JOINT

SUCCESSFULLY TREATED.

To the Editor of the Medical Gazette.

SIR,

I BEG leave to forward you a short report of three cases of injury to the elbow-joint, for insertion in your valuable journal.—I am, sir,

Your obedient servant,

J. COLLIER, M.R.C.S.

Brackley, Sept. 1, 1836.

CASE I.—*Dislocation of the Head of the Radius forwards.*

William Moore, ætat. 12, fell from the top of a high wall, on the 12th October, 1827. When raised up, he complained of great pain in the left forearm, with inability to use it; it was slightly bent inwards. He was led to my house, where I immediately instituted an examination of the part, and found the head of the radius dislocated forwards upon the external condyle of the os humeri, preventing flexion of the joint.

By the assistance of counter-extension above the elbow, I began extending the fore-arm by grasping the hand; and continuing this for about eight or ten minutes, together with forcible supination, the dislocation was quickly reduced.

CASE II.—*Partial Dislocation of the Head of the Radius forwards.*

I was called to see a child, about two years and a half old, in October, 1834, who was unable to raise the right arm. I learnt from the mother that the day before, whilst the child was standing, she attempted to raise it some height from the floor by laying hold of the wrists; and since then the child cried whenever the elbow was touched or moved. There was no swelling of the part, or any deformity, except a semi-flexed state of the limb, and pronation of the hand. I could not flex or extend the arm without producing pain; nor could the child be prevailed upon to put out the hand.

On examining the elbow, the bones composing that joint appeared to be in their proper places; but on placing my thumb over the head of the radius, it appeared to project too much in front; indeed, about two-thirds of it could be felt above the proper level: this circumstance explains the reason why the part could not be easily moved, because the round part of the condyle was opposed to the edge of the radius below. This displacement was soon rectified, by grasping the condyles with the left hand, and placing the thumb over the projected part of the radius, whilst with the right hand I made extension from the wrist; this, with the assistance of a little rotation, brought the radius into its natural situation. No sooner was this done than the child could move the arm freely, and put out the hand to receive any thing.

CASE III.—*Fracture of the External Condyle of the Os Humeri.*

W. Dix, ætat. 10, a stout healthy boy, August 12, 1835: whilst in the hurried

* Practical Treatise on Uterine Hæmorrhage, &c., p. 139.

attempt to get over a stile, his hand slipped forward, precipitating him with violence upon the ground, owing to the declivity being so great on the farther side.

He was immediately carried home, and placed in bed. On visiting him shortly after the accident, it was evident the left elbow-joint had sustained the injury, from its deformity; and although considerable swelling surrounded the parts, very slight handling was sufficient to pronounce the existence of fracture.

The external condyle was fractured in two directions, causing a projection of bone anteriorly and posteriorly. The former had all but pierced through the integuments; in short, it might be denominated a comminuted fracture of the joint. There was considerable ecchymosis. The internal condyle, radius, and ulna, were uninjured.

In the reduction of the fracture I was assisted by my brother, who attended the case with me. He took the part of counter-extension, by grasping the humerus, whilst I extended the fore-arm with my right hand, slightly flexing it, and with the thumb and fingers of the left to compress the fractured portions. After a few minutes' exertion both portions were replaced, the reduction producing an audible grating. The parts now assumed their natural appearances. A many-tailed bandage was used, and the limb laid in the extended position upon a long splint well padded, reaching from the shoulder to the fingers. Evaporating lotions were kept constantly applied, and the antiphlogistic plan of treatment pursued.

At the expiration of three weeks the arm was put up in Amesbury's elbow-splint, and by degrees brought to an angle with the upper arm. Friction and passive motion were daily employed for some time with good effect. In two months after the accident there was considerable motion of the joint, and he can now use the arm tolerably well, considering the severe nature of the injury.

During the progress of this interesting case very little constitutional disturbance was observed.

HYDRIODATE OF POTASH IN DYSPEPSIA.

To the Editor of the Medical Gazette.

SIR,

SHOULD the following case be of sufficient interest to entitle it to publication, you will oblige me by giving it a place in your excellent journal.—I am, sir,

Your obedient servant,

FORBES WINSLOW, M.R.C.S.

48, Hertford-Street, May Fair,
Sept. 2, 1836.

A gentleman consulted me a few months back labouring under well-marked symptoms of secondary syphilis. In conjunction with an ulcerated condition of the uvula, he had a cutaneous affection, which had every character of being the result of the syphilitic taint. This patient had been taking mercury for some time previously to my seeing him, without any manifest improvement; and when he placed himself under my care, it was with the express injunction that I was to cure him, if possible, without the exhibition of mercury in *any form*.

His motive for thus wishing to avoid this medicine was this:—He stated, that previously to the development of the secondary syphilis he had availed himself of the great experience of Dr. Wilson Philip, for a severe affection of the stomach, which no medicine appeared to alleviate; and that when he had taken large quantities of the blue pill for the syphilitic attack, the disease of the stomach became considerably aggravated; and so intense were his sufferings, that he declared to me that he would rather allow the affection of the throat and skin to take its own course, than increase his original derangement of the stomach by taking mercury.

I explained to him that I did not consider it necessary that he should continue taking this medicine, and that I had found the hydriodate of potash in numerous cases similar to his own, effect a speedy and radical cure without the exhibition of mercury in any shape. Under my direction he took the hydriodate of potash for some weeks, and the affection of the skin and throat rapidly assumed a healthy aspect. At the ex-

piration of a month every syphilitic symptom had left him; and to his great surprise and pleasure the affection of the stomach, which had so long rendered his life miserable, became considerably alleviated. Concluding that this favourable change was the result of the iodine, I recommended him to continue taking it. He did so until every symptom of his old stomach disease completely vanished, and his health was re-established.

Was I warranted in referring the cure of the gastric malady to the remedial agency of the hydriodate? In order, as far as my limited means afforded me, to set this question at rest, I have administered the same preparation in *five* cases of severe indigestion, and with great apparent benefit. Two of the cases appear to be satisfactorily cured, and three are now under treatment, with every prospect of a favourable result.

My object in bringing these cases before the notice of your readers is to ascertain how far the experience of others coincides with my own. In this, as in all other medicines, no general rules for its exhibition can be laid down applicable to all cases. An indiscriminate use of the hydriodate of potash will only tend to shake the confidence of the practitioner in the efficacy of the medicine, and to disappoint the patient in the prospect of a speedy cure.

There are certain conditions of the system in which mercury cannot with safety be given. In these cases iodine offers itself as a valuable substitute, producing an effect analogous to that of mercury, without giving rise to the disagreeable train of symptoms so frequently known to result from the use of that medicine.

Without leading the profession to entertain exaggerated expectations from the use of iodine in dyspeptic cases, I think I can safely recommend it as a valuable auxiliary in the treatment of this distressing disease. If it does not always effect a cure, it will certainly alleviate the sufferings of the invalid; and this, in the opinion of physicians and patients, is a great point obtained.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

Manuel de Médecine Operatoire, fondée sur l'anatomie normale et l'anatomie pathologique. Par J. F. MALGAIGNE, Professeur Agrégé de la Faculté de Med. de Paris, &c. Deuxieme Edit. 1837. Baillière.

THIS is, undoubtedly, a most clever manual, which cannot but be highly acceptable to our surgical brethren, and more particularly to junior practitioners. The arrangement, which is of great importance in a work of this kind, is simple and satisfactory. It is all comprised in three sections. The first relates to *elementary* operations, such as incision, puncture, cauterization, ligature, hemostatic processes, and re-union. The second treats of *general* operations, beginning with those of minor surgery, and including those on the skin, teeth, muscles, vessels, and bones. And in the third section we are furnished with directions for performing *special* operations, under which denomination we find those for the eye, the ear, the nose, the mouth, the neck, chest, abdomen, and other parts, including lithotrity and toxicological processes.

M. Malgaigne enjoys so high a reputation as a practical surgeon, and has such opportunities of adding to his stores of experience, through his appointment of surgeon to the central bureau of hospitals in Paris, that much confidence might safely be reposed in his precepts. But the fact of a second edition of his manual being called for within so short a period from the appearance of the first, bears testimony to the estimation in which his work is held in all quarters. The author assures us that he has taken great pains in preparing for his re-appearance, and that he has added about an eighth part of new matter. We should say, on the whole, that the volume fully justifies its motto—*sécurité, simplicité, célérité.*

Abbildungen von Krankheitsformen aus dem Gebiete des Augenheilkunde und

einigen augenärztlichen Werkzeugen: mit erläuterndem Texte. (Delineations of Eye Diseases, &c.) Von KARL JOSEPH BECK, Professor der Chirurgie, &c. in Freiburg. Heidelberg u. Leipzig. Schloss.

Professor Beck offers here a valuable contribution to ophthalmology. Some of his delineations have a startling reality about them, showing at once the source from which they have been derived—nature. There are seventeen plates altogether, done on copper, and beautifully coloured. The letter-press extends to nearly forty pages, and the shape of the volume is a handsome thin quarto. This is all we can say of a work the excellence of which lies in its graphic accuracy, and which must be seen, to be appreciated and admired.

Vermischte medicinische Schriften. (Miscellaneous Medical Papers.) Von Dr. ERNST L. HEIM. Leipzig, 1836. Schloss.

Perhaps no physician ever enjoyed more celebrity than Heim, in his own country, while he has been almost wholly unknown out of it. He lived to above the age of eighty, and for fifty years had been a distinguished writer on medical subjects. The present is a posthumous volume, containing all his best papers in a collected form, and edited by his friend Dr. Pätsch, of Berlin. Among them will be found many curious cases and observations, as well as reviews of practical works which have appeared during the last half century. The book, we think, is eminently deserving the notice of the more learned members of our profession, whether engaged in surgery or physic.

The Circulation of the Blood as found in the Human Fœtus, and compared with that in the Four Classes of Vertebral Animals. By C. G. MARTIN ST. ANGE, D.M.P. Translated from the French by T. W. JONES, D.M.P. 1836. Schloss.

THE appearance of this graphic account of the fœtal circulation, in an English dress, is a boon both to teachers and students in this country. On a single sheet—of large dimensions, indeed—we see at a glance all the peculiarities in the circulation of the vertebral classes, beautifully represented, with the parts of the natural size. The principal figure, a six months' fœtus, displayed with its placental appendages, must throw that of Tiedemann into the shade; but, besides this, there are no less than thirty other figures in the chart, shewing more or less in detail the condition of the circulatory apparatus in man and animals. Around the engravings is as much letter-press as would fill a goodly pamphlet; yet there is no crowding nor confusion. A coloured copy, such as the one before us, handsomely mounted on a roller, ought to be found in every professional library and class-room.

MEDICAL GAZETTE.

Saturday, September 10, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

THE PROVINCIAL ASSOCIATION COMMITTEE, AND THE POOR LAW.

WE return to the report of the Poor Law Committee appointed by the Provincial Medical Association, and in doing so, beg to recal to our readers' memory the protest we made against the set phrase of laudation employed by the reporters, in speaking of the poor law generally, by way, as it would seem, of deprecating the imputation of factious or interested motives. They point out the *economy* of the measure with an air of compliment. The light which every day serves to throw on the nature of this equivocal virtue attaching to the "iron" law, (as it has been well characterised) bids fair to make the term economy odious to all men. We question if it will not give to that science of doubtful standing—political economy—just for the sake of its presumed relationship, a death-blow.

But we are satisfied that the committee are by no means ignorant of the real nature and tendency of the amended

Act—a circumstance which only makes us wonder the more at their misdirected approbation. They tell us in an early page, that they, "in common with all who have considered the subject, had looked with hope at the prospect of a thorough reform of the system, on the introduction of an amended poor law. It, however, appears, that hardly had the new law come into action, when a prejudice was conceived by its administrators against the medical profession; and although they were necessarily and totally unacquainted with the various bearings of this important subject, as well as with the best mode of effecting an alteration, yet, in general, they distrusted and sternly resisted the suggestions of those who alone were able to assist them, viz. the medical practitioners."

Again, in noticing the statements in defence of the *amended* system, put forth by the poor law commissioners and their assistants, we are glad to find the Committee displaying a proper indignation at that passage in the first report, in which it is stated, "that in a great majority of instances," a compact has existed between the parish authorities and the resident practitioner, by which the former were supplied with medical attendance for the sick paupers "at a small fixed sum," on "condition" that the latter should be allowed to charge distant parishes exorbitantly and dishonestly for the relief afforded to extra parishioners! Having shown, on unquestionable evidence, that such a statement is wholly groundless, and that it conveys a gratuitous insult on the profession, the Committee spiritedly close this part of their remarks by saying that they "are obliged to come to the unwelcome conclusion that the Commissioners hoped, by impugning the character of the professional body, to reconcile the public to the unjust treatment which they have so arbitrarily inflicted upon it; and that in many instances the effect has been but too well calculated upon."

In that part of their report in which the Committee expose to bitter censure the conduct of the Commissioners in calling in strangers, students, or any body who bids low enough for the appointment, over the heads of resident practitioners, the reporters are very successful. We quote the passages to which we allude:—

"They [the Commissioners] have attempted to defend their practice of procuring students who have recently passed their final examinations, for those unions where the established practitioners could not be compelled to countenance the new regulations, by declaring their opinion that the education which these young men had just received was equivalent, in practical utility, to the knowledge resulting from long experience on the part of the older practitioners.

"Your Committee are here again obliged to express their surprise at such a conclusion, so contrary to universal opinion. Nor could it excite less astonishment to find that the Commissioners congratulated themselves on the "credit" attached to holding a medical office under 'a Board of Guardians!!' The 'credit' of such an appointment may, indeed, be easily judged of from the circumstances attending it, which have been already described. With regard to the analogy which they have assumed between a medical parochial appointment and that to 'one of the chief medical institutions in the country,' it is sufficient to say, that, besides the important differences which might readily be enumerated respecting the duties and advantages of the two offices, there is this primary one,—The election to the latter is in itself a mark of distinction, because it is the consequence of merit. The office gives dignity to the officer, who thereby acquires distinction and consequent advantages, whereas the *medical* parochial office, so long as it is obtained by pecuniary competition, must degrade the holder, even though many respectable men suffer themselves to impart to the office what the office can never return."

The ridiculous assumption of the Poor-Law functionaries, in comparing their medical appointments with those in the army and navy, is also well exposed:—

"A medical gentleman wrote to the Commissioners last year, representing, in forcible terms, the evil of employing young and inexperienced strangers for the medical care of paupers. In reply, the Commissioners defend this practice by reminding him 'that duly certificated medical men, though young, are engaged to attend upon seamen and soldiers in the army and navy.'

"The difference, however, between an army and navy appointment and a parochial appointment, is clear to the most superficial observer. In the former, the young man is first made '*assistant surgeon*,' and is, for some time, under the control of the full surgeon; in the army, especially, every medical officer is responsible and subordinate to the Army Medical Board; and he is, in some degree, limited to certain branches of practice.

"In the *parochial* office, on the other hand, the young man is under no professional control; he has the sole and the irresponsible charge of the most important cases in every branch of practice, even in midwifery, where considerable experience is absolutely necessary; he has not even the advantage of consultation with his older medical brethren; and he need satisfy no one as to his professional competency, and his correctness of practice, but a Board of Guardians!"

These are but a few of the several points in the Commissioners' report which are successfully answered by the Committee. They, in conclusion, recommend the medical body to have recourse to the legislature, seeing that there is nothing to be gained by disputing with the flinty churls in office. This is a forlorn hope, we fear: yet probably it is the best, as indeed it seems the only feasible, course to be adopted. The Committee make a strong appeal to the Association to apply their combined influence to a reform of the present abuses.

"Should this Association, and the medical body in general, fail in obtaining redress from the Legislature, after well-considered and well-directed efforts, the alternative is open to us,—either to take a lower station in society, or firmly to decline any participation in the medical appointments of the new Poor-Law: we may hope that the latter course will be extensively adopted. A broad line of distinction will then be drawn between those practitioners who are actuated by a high sense of honour and duty, and those who, from interested motives, would sacrifice the dignity and the usefulness of their avocation.

"Your Committee are led, by present occurrences, to regret the want of some general discipline, some presiding influence over the members of our profession; an influence which is exercised in every profession except the medical. It is true that a higher standard of qualification would ultimately accomplish the desired end; but in the meantime, something should be done to check the wretched spirit of rivalry and speculation, the under-bidding, and the jobbing, which unfortunately are but too frequently to be found among medical men.

"The prospect which the prosperity of this Association holds out, is almost the only one upon which we can at present look with satisfaction and hope. This Institution seems well suited to raise the tone of moral and professional feeling among medical men in the provinces; and if, by means of it, more exalted principles, superior aims, and a firmer unity of purpose, be infused throughout the great body of general practitioners, we may expect the best results to the interests of the profession, as well as to those of the community."

It is rather unfortunate that this appeal had not been presented to the Association earlier, so that it might have been effectually acted upon at the annual meeting; or that the meeting had not taken place at an earlier period of the year. As it is, the business seems to have come lamely off: the report was laid before the Association, adopted, and a petition to Parliament prepared. But the Parliament was at that time rising, and it was of little or no consequence

whether the petition was then presented or not: it was "a day after the fair."

We cannot see that, in the present state of things, any other effectual measure can be adopted than that of abundantly exposing the crying abuses of the system. It is with this view that we have endeavoured to make our readers acquainted with the labours of the Committee. What we have extracted from the report bears but a small proportion to the quantity of excellent matter which it contains; and we strongly recommend the entire to the calm perusal of our readers. The gentlemen of the Committee, we beg leave to add, have acquitted themselves very ably of the troublesome task imposed upon them; and they are fully entitled to the approbation of every respectable medical man in England.

BIOGRAPHICAL NOTICE OF HUFELAND.

This distinguished veteran, author of several popular works, which have rendered his name familiar in every part of the globe, died lately at Berlin.

Christopher William Hufeland was born at Langensalza, 12th August, 1762. His father was physician in ordinary to the Duke of Weimar; and it was at this latter town that the son commenced practice. In 1793 he obtained a Professorship at Jena, where he continued until 1801; he was then invited to become Director of the Medico-Chirurgical College at Berlin, appointed physician to the King of Prussia, and first physician to the hospital La Charite.

The reputation of Hufeland was already high; for he had produced several writings which showed the soundness and practical tendency of his principles. It was his boast that he was of no sect in medicine, but that he selected as a pure *eclectic*, from whatever quarter, what seemed most worthy of his adoption. His prize paper on Scrofula appeared in 1795, and introduced a new medicinal substance to the notice of the profession—the muriate of baryta—which was for some time considered as a useful remedy. As early as 1789, he published some remarks on inoculation, and the treatment of small-pox, which had much influence on the practice of the day; and in 1791, the subject of the uncertainty of the signs of death engaged his attention. Several years afterwards (in 1808), he produced a work on apparent death, which led to some important regulations of medical police, in the establishment of buildings in which the dead were to be deposited for a certain time previous to burial.

As a teacher, Hufeland was very successful: the kindness of his manner made him a great favourite with his pupils, whose respect and gratitude he secured by the excellence of his instruction. On the profession at large he conferred a great benefit by the establishment of his practical journal—*Journal der praktischen Arzneikunde*, begun in 1795, and continued, with the assistance of Himly, Harles, Osann, and Fr. Hufeland, up to the present time. His *Bibliothek d. prakt. Heilkunde* was commenced in 1799, and carried on in a parallel career by the same coadjutors.

When Brown's doctrines were introduced into Germany, Hufeland bestowed on them his impartial attention; but the result was not favourable to the new light from Scotland: the Berlin professor felt himself called upon to expose the poverty of the Brunonian theory, and the inexpediency of admitting it into practice. But in adopting this course he acted with his accustomed humanity and moderation, not condemning the system utterly, but even acknowledging that he was indebted to it for many excellent suggestions. In the department of materia medica, he was the author of some new arrangements, which are still followed by certain teachers; and in that of practical medicine, he brought out, in 1800, his much-valued *System der praktischen Heilkunde*, and in 1818, his elementary treatise, the *Lehrbuch*.

But the production which has rendered him celebrated, both at home and abroad, is his *Makrobiotik*—the well-known "Art of Prolonging Life," which has been translated into, and has acquired popularity in, almost every language of Europe. This was the concentration of his lectures on dietetics, a subject which had long engaged the powers of his mind. The work appeared originally at Jena, in 1796, and speedily

ran through repeated editions: in this country a translation was published in the following year, and, we believe, has been reprinted frequently since.

In July, 1833, a jubilee, in honour of the fiftieth anniversary of his doctorate, was celebrated by all the learned bodies of Prussia. At Berlin public panegyries were pronounced, several new works were dedicated to him, and a medal was struck for the occasion, bearing the head of Hufeland, with this inscription:—

> "Naturæ præcepta colens, morbisque medetur,
> Filaque Parcarum lentius ire docet."

For some time past he was unable to perform, with his pristine activity and diligence, the duties of his professorship; yet he had not resigned his hopes of usefulness, for we find him announced, in the programme of the business of the approaching session, as intending to give clinical instruction in the Institute of the University, as his health might permit *(quantum valetudo permiserit.)* But it has been otherwise ordered: he was seized with a mortal illness some weeks ago, under which he sunk on the 26th August, 1836, in the 75th year of his age.

We understand that an admirable likeness of Hufeland, from a drawing by Krüger, is in preparation by Mr. Schloss, of Great Russell-Street. It is to form a companion portrait for the excellent lithograph of Tiedemann, lately brought out by the same indefatigable publisher.

BUCKS INFIRMARY.

MANAGEMENT OF THAT DUODECIMO INSTITUTION.

To the Editor of the Medical Gazette.

Sir,

In a remote corner of the county of Bucks is a duodecimo edition of a London hospital: if always full, it might furnish interesting occupation for one accomplished practitioner: it boasts seven!—and until death compassionated the medical staff, it luxuriated in nine!! One of the seven now in *active* service, is, I am told, an able and humane man; and one of his colleagues might be a very efficient ally, in case of sufficient occupation, but that his tastes are bucolic, and his talk of bullocks—in other words,—farming, has for him more charms than physic; and if more emolument, as is most probable, I commend both his prudence and his taste.

This beautiful miniature of a metropolitan job has been in *active* operation two years; with the last of which I have only to do at present. From June 1835, to June 1836, the *gross* expenditure (yes, *gross* they do justly call it in their "report") of this 12mo. institution was 940*l.* 18*s.* 7*d.*; but as 210*l.* of this sum was for matters some of which may be considered as *rather* more permanent than others, we will call the gross sum expended *upon* the patients, and *for* the governors, 730*l.* 18*s.* 7*d.* Doubtless you must be anxious to know the number of *patients relieved.* 200, says the report; but, fairly and softly!—the report sets forth that 3 died (spiteful things), that 2 were incurable (poor things), that 3 were dismissed for irregularity (fortunate things), and 22 for non-attendance (discreet things): so you see that a good deduction must be made from the 200,—27 at least. I leave your arithmetical readers to calculate the precise share of 730*l.* 18*s.* 7*d.* which would thus fall to the lot of each of the 173—something more, perhaps, than 4*l.* per head! Why, sir, not a hundred miles from this excellent institution, you may command a *bird's*-eye view of one of Mr. Chadwick's chirurgical tirailleurs, taking care of, bodily, just 24 patients for this same sum of 4*l.*!

Naturally anxious to know something of the economy of this Infirmary, and something of the deliberations of the Committee of Management, I politely invited the publicity, which I think should have been volunteered; when lo! up starts the valiant secretary—(these secretaries, from Gil Blas down to Lord John, are the very devil—fellows costive of the truth, from whom to obtain it, you must exenterate them)—and tells me, that the business of the charity is as much the *private* concern of the *committee* as my own affairs are my *private* and *exclusive* property! He winds up his urbane epistle with an invitation to become a governor of this 12mo. Infirmary. I shall take his advice when I have a better assurance of the judicious application of my two guineas, and a more definite notion of the privileges of a governor, than I at present can gather from "The Third Annual Report;" for which purpose I address the Medical Gazette, as a likely mode of obtaining both.

To kill two birds with "*une pierre*," as poor Matthews's last "Trip to Paris" had it, allow me to inclose an evidence of the

high professional taste and independence of the professional advertiser. Much as I deprecate the "*club*" system, it appears to be the *only* way of combatting this disgusting vulgarity.—I am, sir,

Your obedient servant,

AN OBSERVER.

Aston Clinton, Bucks,
Sept. 3, 1836.

(Handbill.)

MESSRS. TERRY AND MARSHALL,

Surgeons,

AYLESBURY,

HAVING dissolved partnership, Mr. Marshall has commenced practice exclusively on his own account, and submits to the public generally the following scale of charges, for which he purposes attending, viz.

	s.	*d.*
Midwifery in town	10	6
Out of town	12	6
Pint mixture	2	6
Half pint mixture	1	6
Small mixture	1	0
A draught	0	9
Quart lotion	3	6
Pint lotion	2	6
Half pint lotion	1	6
A journey within three miles	1	6
Exceeding three miles	2	6

All other charges proportionally economical.

By referring to former medical bills, these charges will be found in every item about half the amount.

To the labouring class he will only charge as follows, viz

	s.	*d.*
Midwifery in town, and not exceeding four miles	10	6
Exceeding four miles	12	6
In both cases medicines will be supplied without any extra charge.		
Half pint mixture	1	0
Draught	0	6
Journeys not exceeding three miles	1	6
Beyond that distance	2	0

To all who consult him, he pledges the most prompt and indefatigable attention in every branch of the profession.

Mr. Marshall begs to add, that he is a member of the Royal College of Surgeons, and Licentiate of the Apothecaries' Company, London.

Back-Street, Aylesbury,
March 25, 1836.

PRELIMINARY EDUCATION OF MEDICAL STUDENTS.

To the Editor of the Medical Gazette.

SIR,

THE intellectual and even the moral condition of but too large a portion of medical students is considered by many, and perhaps not without reason, to be inferior to that which belongs to the position they ought to occupy in society.

I admit that the more strict examinations at Apothecaries' Hall, and the College of Surgeons, which have been introduced of late, are conducive to the improvement of the mental and moral state of the medical student, inasmuch as they render it incumbent on the candidate for medical honours to possess a more thorough knowledge of all the branches of his profession. But is it not desirable that, in addition to the necessity of obtaining a diploma, motives should be supplied to prevent the waste of time which is too frequent among young men who are undergoing their noviciate. Every hour of their apprenticeship is too valuable to themselves, and to the community, to be lost in frivolous pursuits. From the period when a youth enters an apothecary's shop, up to the close of his hospital studies, his time should be devoted, to the greatest possible extent, to whatever is connected with his future profession. To make him a creditable practitioner, his knowledge should be as much as possible commensurate with the important duties he will have to perform; and his predominant impulse should be a passion for medical science. With the intention, therefore, of supplying another motive to study, I would suggest, that each school of medicine should submit the students entering therein to an examination, before they commence the medical curriculum; and that, of those who undergo such examination, a certain number whose attainments are the highest, should receive their lectures free of expense. All the pupils might be required to undergo this preliminary examination, or only such a portion as voluntarily offer. If it were not a matter of compulsion upon all, it would still be an inducement to the well-disposed to leave their private education with much more knowledge than most students now possess.

All youths to whom the finish of their studies free of expense is an object, would be thus encouraged to corresponding perseverance in study; and in the honour thus obtained there would be an additional

motive for practitioners who are intrusted with their primary professional education, to make it as complete as possible. The superior mental discipline resulting from habits of industry, would engender a more strict *morale*.

A youth cannot study hard and indulge in the wine-drinking, cigar-smoking pleasures of provincial life; nor would it be compatible with his previously acquired studious habits, that the costly hours of his residence in London should be spoiled by the dissipation of the metropolis, and when the time of examination for the diploma arrives, to find himself but scantily furnished with the required knowledge, and scarcely able to pass muster on the occasion.

Although only a few persons in each school obtained the reward, many would be almost equally benefited by the improved habits contracted in the endeavour to qualify themselves for the examination; and probably the whole class of medical students would be improved thereby. Abundant evidence of the success of this plan is to be found in the large endowed grammar schools which have presentations to Colleges at Oxford and Cambridge. Some of the ablest men of those Universities have been educated at Eton or Westminster, and here completed their education without expense—the reward of their early industry and talents. And is it too much to expect that the adoption of such a system in medical tuition would be followed by the same beneficial results?

I remain, sir,
Your obedient servant,
T. King.

6, Maddox-Street,
Sept. 5, 1836.

MIDWIFERY LECTURES.

NEW REGULATION OF THE SOCIETY OF APOTHECARIES.

To the Editor of the Medical Gazette.

Sir,

I send you the inclosed circular, which has been transmitted from the Hall to the different lecturers on Obstetric Medicine in London. For the convenience of the teachers as well as of the students, it is desirable that it should be made as public as possible, before the commencement of the next session.—I am, sir,

Your obedient servant,
F. H. R.

Sept. 6, 1836.

"Apothecaries' Hall,
August 15, 1836.

"Sir,—I am instructed by the Court of Examiners to acquaint you, that in consequence of a conference held at the Hall with a deputation from the Teachers of Midwifery in London, on the 8th instant, the Court have agreed to revise the regulations for the study of Midwifery published by them in April, 1835, and in lieu thereof they have resolved,—

"That Two Courses of Lectures on Midwifery, consisting of sixty lectures each (including examinations), may be attended at any time subsequent to the termination of the first summer session; and that Practical Midwifery may be attended at any period subsequent to the termination of the second winter session.

"The Court of Examiners beg at the same time to state, that the course of study for the Midwifery Classes instituted last year, was not adopted without mature deliberation on their part, and originated in a painful conviction of the very inefficient attainments of the students generally on every point connected with Midwifery, and the Diseases of Women and Children; and although they are still of opinion that the course of study they had arranged would, when it came into operation, have been productive of the greatest good, nevertheless, in compliance with the unanimous wishes of the teachers of this department of medical science, they make this sacrifice of their own views, in the hope that the result may be found productive of those advantages anticipated by the lecturers.

"The Court have been given to understand that the majority of students entertain a belief that no examination is instituted as to their attainments in this branch of study; they therefore trust that each lecturer will impress upon his class the fallacy of such an opinion, assuring their pupils that in addition to the usual inquiries into the anatomy, physiology, and pathology of the uterine system, a strict investigation is made respecting their knowledge of every condition connected with the pregnant and puerperal states; and that the only point to which the examination does not extend, is that of delivery by instruments.—I am, sir,

"Your most obedient servant,
"Robert B. Upton,
Secretary."

MORE MANSLAUGHTER

BY MORISON'S PILLS.

On Thursday week an inquest was held before Mr. Thorney, Coroner for Hull, on view of the body of Mary Rebecca Russell,

a married woman, who resided in Collier-street, in that town, and who died on the previous Tuesday night, as was alleged, from taking Morison's pills. After hearing part of the evidence of the husband of deceased, and that of Mr. Walworth, surgeon, the inquest was adjourned until the next day, the jury being of opinion that, previous to the evidence being fully gone into, it was necessary that a post-mortem examination of the body should be made, and they selected Mr. Casson, surgeon, to make the examination. On Friday afternoon the jury again assembled, and after a long investigation, and proof having been given that the pills contained gamboge, and that the intestines of the patient bore evident marks of the poisonous ingredient, the Coroner explained the law of the case, and the jury retired. After an absence of half an hour they returned with a verdict, that they found the death of deceased occasioned by disease, in conjunction with medicine improperly administered, and by the gross ignorance of the person prescribing. The Coroner said, under these circumstances, it would be for them to return a verdict of manslaughter against the person by whom this was administered, which would be Mr. La Mott. The Foreman.—Yes. The verdict was then entered —*Manslaughter against Thomas La Mott.* The Coroner immediately issued his warrant for the apprehension of Mr. La Mott, but we understand that he is not yet in custody.—*Hull paper.*

FORMULA FOR THE INTERNAL ADMINISTRATION OF IRON.

By Meurer.

The following formula, though much recommended by chemists, has been little employed in medicine. It is an advantageous substitute for chalybeate waters, which are less efficacious than it, and much more expensive.

℞ Sulph. Ferri Chryst. ʒss.
Sacch. alb. ʒiss.
Tere simul et divid. in chart. xii.

℞ Bicarb. Sodæ. ʒss.
Sacch. alb. ʒiss.
Tere simul et divid. in chart. xii.

Dissolve one packet of each separately in water, mix, and let it be taken as an effervescing draught. The decomposition is as follows: 1st, carbonate of the protoxide of iron; 2nd, sulphate of soda; 3rd, a little undecomposed carbonate of soda, the quantity of bicarbonate being more than sufficient for the decomposition of the sulphate of iron.—*Summar. des neuesten in der Heilkunde:* and *Dublin Journal of Med. Science, Sep.* 1836.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *Sept.* 6, 1836.

Abscess . .	4	Hooping Cough .	12
Age and Debility .	32	Inflammation .	31
Apoplexy . .	9	Bowels & Stomach	4
Asthma . .	7	Brain . .	5
Cancer . .	2	Lungs and Pleura	1
Childbirth . .	2	Insanity . .	4
Consumption .	55	Liver, diseased .	5
Convulsions .	43	Measles . .	4
Dentition or Teething	11	Mortification .	1
Diarrhœa . .	3	Paralysis . .	2
Dropsy . .	20	Small-pox . .	14
Dropsy on the Brain	24	Spasms . .	2
Erysipelas . .	1	Thrush . .	2
Fever . . .	9	Unknown Causes	26
Fever, Scarlet .	1		
Gout . . .	1	Casualties .	11
Heart, diseased .	4		

Increase of Burials, as compared with the preceding week . . } 39

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N.
Longitude 0° 3′ 51″ W. *of Greenwich.*

Sept. 1836.	Thermometer.		Barometer.	
Thursday . 1	from 44	to 68	29·73	to 29 83
Friday . . 2	49	67	29·74	29·75
Saturday . 3	49	64	29 83	29·59
Sunday . . 4	52	67	29·32	29 35
Monday . . 5	50	60	29 42	29 52
Tuesday . . 6	47	59	29 36	29·35
Wednesday 7	47	59	29·50	29 69

Prevailing winds, S.W. and W. by N.

Except the 7th, generally cloudy, with frequent rain; on the afternoon of the 6th, thunder and lightning, accompanied by heavy showers.

Rain fallen, ·1 inch, and ·125 of an inch.

Charles Henry Adams.

NOTICES.

Mr. H. Bird, we find, on a reperusal of his letter, has completely mistaken our meaning. He opens with what looks very like a misrepresentation; and it would be in no way interesting to our readers to give insertion to his remarks for the mere purpose of setting him right.

A Correspondent sends us the following very proper suggestion:—

The Medical Witnesses Bill has passed the legislature, empowering the Coroner to subpœna medical practitioners legally qualified to give evidence in cases of suspicious death. *Quære*—How is the Coroner to know who are, and who are not, legally qualified? Ought not the names of qualified practitioners in the different towns of the kingdom to be published, and hung up in the Town Hall of the respective towns?

Of the other *quære*, proposed by the same correspondent, we do not exactly see the drift, and shall therefore withhold it for the present.

Wilson & Son, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, SEPTEMBER 17, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE LI.

LINACEÆ.

THIS family contains two officinal species, *Linum usitatissimum*, and *L. catharticum*.

1. *Linum usitatissimum*.

This is an indigenous plant, belonging to *Pentandria Pentagynia*. It is largely cultivated, both for its seed and for its fibre, for making thread. For the latter purpose, the Linum perenne, another indigenous plant, has also been cultivated.

FIG. 131.—*(a.) Linum usitatissimum.* *(b.) Linum perenne.*

The officinal part of the plant is the seeds. These are small, flat, and of an oval shape. Their external coat is brown, shining, coriaceous, and very mucilaginous. In the albumen of the seed is contained a large quantity of a fixed drying oil—the well known *oleum lini*. This is readily obtained by expression. On account of its taste and odour it is unfit for internal use, but, mixed with lime-water, was at one time a favourite application to burns. This mixture constitutes the *linimentum aquæ calcis* of the Edinburgh Pharmacopœia. It is a mixture of an earthy soap, with excess of oil.

The cake left after the expression of the oil, is denominated *oil-cake*, and is used to fatten cattle. Reduced to powder, it constitutes the *farina lini*, or *linseed meal*, of the shops, though this should be prepared from the unpressed seeds. This meal is used for cataplasms. The *infusum lini compositum* is prepared by digesting bruised linseed and liquorice-root in boiling water. It is a demulcent and emollient, and may be used in irritation of the alimentary canal, or of the pulmonary or urinary organs.

2. *Linum catharticum*.

The purging flax is also an annual indigenous plant. A drachm of the dried plant is a convenient purgative; or we may employ an infusion of a handful of the recent plant.

MYRTACEÆ.

Several plants belonging to this family require a brief notice.

1. *Myrtus Pimenta*.

Pimenta, Jamaica pepper, or allspice (so called because its taste approaches that of a mixture of several spices—namely, cinnamon, cloves, and nutmegs)—is the dried unripe berry of the Myrtus Pimenta, a plant which is a native of the West Indies, and belongs to *Icosandria Monogynia*.

The active constituent is a volatile oil, (*oleum pimentæ*) easily recognised by its odour. As already mentioned under the head of opium, this oil produces a red colour with nitric acid, and a blueish green one with the tincture of muriate of iron of the Pharmacopœia, thus agreeing with morphia in two properties.

Allspice is one of the commonest spices employed in cookery. It stimulates the stomach, promotes digestion, and relieves flatulency. The essential oil is a powerful irritant, and, applied to the skin, is capable of vesicating. It is sometimes placed in the hollow of a carious tooth to relieve tooth-ache. The *aqua pimentæ* is used partly for its flavour, partly for its carminative properties. There is also a *spiritus pimentæ*; it is stimulant and carminative, and may be employed in doses of from two drachms to a fluid ounce.

2. *Caryophyllus aromaticus.*

The cloves of the shops are the dried flower-buds of this plant, a native of the Mollucca Isles, and belonging to *Icosandria Monogynia*.

FIG. 132.—*Caryophyllus aromaticus.*

Their active principle is a volatile oil (*oleum caryophyllorum*); but the tannin, extractive, and resin, found in cloves, must contribute something to their operation. The effects and uses of cloves are similar to those of allspice, just described. There is an *infusion of cloves* in the Pharmacopœia: it is stimulant and carminative, but is seldom used alone. Cloves enter into the composition of several officinal substances,—namely, the compound infusion of orange-peel, the spiritus ammoniæ aromaticus, vinum opii, aromatic confection, and confection of scammony.

3. *Punica Granatum.*

This tree is a native of Africa, and is cultivated in this country on account of the beauty of the flowers. It belongs to *Icosandria Monogynia*, of the Linnæan classification.

FIG. 133.—*Punica Granatum.*

The fruit is rather larger than an orange, and is covered externally by a thick coriaceous rind, called by the older writers, malicorium. It is crowned by the teeth of the calyx. Internally, it is divided into several cells, arranged in two strata, the upper and lower stratum being separated from each other by a transverse diaphragm.

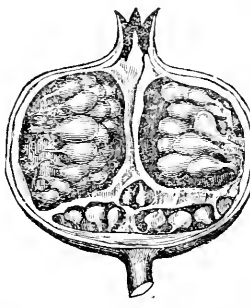

FIG. 134.—*Section of the Fruit of the Punica Granatum, shewing the two strata of cells.*

The lower stratum is divided into three, the upper into from five to nine cells. Some difficulty having been experienced in comprehending the structure of this anomalous fruit, Dr. Lindley has explained it thus: within the calyx are two rows of carpella, a lower and inner one, consisting of three or four carpella surrounding the axis, and placed in the bottom of the calyx; and an upper and outer one, consisting of from five to ten carpella, surrounding the lower, but adherent to the upper part of the tube of the calyx. The two strata or tiers of cells in the pomegranate are formed by the two rows or

tiers of earpella; the transverse diaphragm is formed by the adhesion of the upper to the lower stratum of carpella; and the outer part of the rind of the pomegranate is formed by the calyx which contains the carpella.

Officinal parts.—In this country, the only officinal part of this plant is the bark of the fruit—the *cortex granati*. On the Continent, however, the flowers are employed, under the name of the *balaustine flowers*, as well as the bark of the root, and the seeds.

1. *Cortex radicis granati.* — Dioscorides states, that a decoction of the root of the pomegranate expels intestinal worms. The Indians also were acquainted with its vermifuge properties at a very early period. Of late years it has been again introduced into medicine as a remedy for tape-worm. It is usually given in the form of decoction, which is prepared by boiling two ounces of the fresh root in two pints of water to one pint. Of this the dose is one-third every half hour. The dried is not so powerful as the fresh root. The known active principles of the root are tannic and gallic acids.

2. *Flores balaustiarum* seu *granati.*—These are of a fine red colour, and have a styptic taste, owing to a small portion of tannic and gallic acid which they contain. They are in consequence tonic and astringent, but are not employed in this country.

3. *Cortex granatorum.*—This is the part used in medicine in this country. It contains tannic acid and extractive, and acts, therefore, as a tonic and astringent. It has been employed, in the form of decoction, as a gargle in relaxed sore throat; as an injection in leucorrhœa; and, internally, in chronic diarrhœa and dysentery. Its dose is half a drachm.

4. *Semina granati.*—The seeds are each surrounded by a thin vesicle, filled with an acid styptic juice, which contains gallic acid; and being refrigerant and astringent, are useful in fevers, especially of the kind called bilious.

Melaleuca Cajuputi.

The "gigantic myrtles," as Mr. Crawford terms these trees, are natives of the Molucca Isles, and belong to *Polyadelphia Polyandria*, in the Linnæan classification. By distillation the leaves yield a green camphoraceous oil, the *oleum cajuputi*. As it is imported in copper flasks, it has been suspected the green colour might arise from copper in solution, and M. Guibourt states he found as much as two grains of metallic copper in a pound of the oil: however, the green colour does not invariably depend on this, for in some specimens no copper can be detected.

The effects of cajuput oil are similar to those of other volatile oils. The local action is irritant; the remote action stimulant: when swallowed it occasions a sensation of warmth in the stomach, excites the nervous and vascular systems, renders the pulse fuller, increases the heat of the surface, and promotes diaphoresis. As a local application it has been used to relieve toothache; and, mixed with other oils, has been applied to allay pain in rheumatism, lumbago, and old affections of the joints. As an internal remedy it is employed in hysteria and epilepsy, in flatulent colic, and in cholera.

Eucalyptus resinifera.

The concrete juice which exudes from this tree is denominated *Botany Bay kino.*

The genus Eucalyptus is remarkable in a botanical point of view, for the operculum formed by the union of the sepals into a cup-like lid.

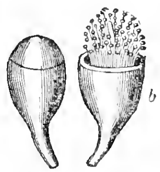

FIG. 135.—*Flowers of Eucalyptus: in (b) the operculum is thrown off.*

LAURACEÆ.

In this family there are several medicinal substances requiring notice.

1. *Laurus nobilis.*

The bay tree is a native of Asia, though it grows wild in the southern parts of Europe. It belongs to *Enneandria Monogynia*, of the Linnæan classification.

The leaves (*folia lauri*) have a peculiar somewhat aromatic odour and a bitter aromatic taste. They contain a volatile oil, and their infusion reddens litmus, and produces in solution of the ferruginous salts a green turbidness, from whence the existence of hydrocyanic acid has been inferred.

The fruit (the *baccæ lauri* of the shops) is described by some as a one-seeded fleshy berry; by others, as a drupe, with thin pericarpial coats. When ripe, it is of a bluish-black colour, an oval shape, and of the size of a small cherry. The funiculus arises from the base of the fruit, and terminates superiorly at the testa. The seed is exalbuminous, and has two coats: the external one (*testa*) is papery,—the internal one very thin. The embryo is composed of two large oleaginous cotyledons, inclosing, superiorly, a radicle. When dried, bay berries are externally of a dark brown colour. They contain two kinds of oils—a

volatile oil, obtained by distillation, and a solid fixed oil, called *laurine*, which may be procured by expression or ebullition in water.

Both the leaves and the fruit of the Laurus nobilis are officinal, but neither of them are, I believe, used in medicine. They may be regarded as bitter and aromatic. The berries enter into the composition of the *emplastrum cumini* of the London Pharmacopœia. The expressed oil (which is a mixture of the fixed and volatile oils already alluded to) is sometimes employed externally as a stimulant.

2. *Cinnamomum Zeylonicum.*

The Ceylon cinnamom tree is termed in the Pharmacopœia the *Laurus cinnamomum.* It belongs to *Enneandria Monogynia*, of the Linnæan arrangement.

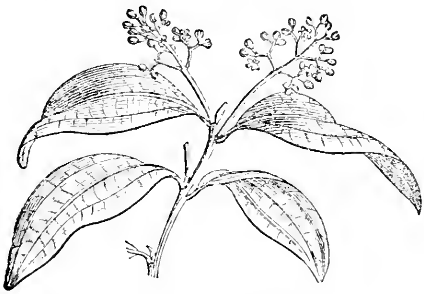

FIG. 136.—*Cinnamomum Zeylonicum.*

The *cortex cinnamomi* of the shops consists of the inner cortical layer or liber of this tree, with some of the other cortical layers attached to it. At Ceylon, there is obtained by the distillation of this bark with water, a very fragrant and pungent oil, — the *oleum cinnamomi veri* of the shops, which usually sells at a very high price. I have known it fetch one guinea per ounce. 80 lbs. of cinnamom bark yield about $2\frac{1}{2}$ ounces of a light oil which floats upon water, and $5\frac{1}{2}$ ounces of a heavy oil. The oil of cinnamon of the shops is heavier than water, and is probably a mixture of the heavy and light oil. It possesses basic properties; for it combines with nitric and hydrochloric acids to form crystalline compounds—the *nitrate* and *hydrochlorate of the oil of cinnamon.* This oil consists, according to Dumas and Peligot, of

18 atoms carbon (6×18) ..	108
8 atoms hydrogen	8
2 atoms oxygen (8×2)	16
	132

By exposure to the air, it absorbs oxygen, and deposits a yellowish crystalline substance, which was supposed to be benzoic acid; but Dumas and Peligot have pointed out some distinguishing properties, and have termed it *cinnamic acid* (acide cinnamique). This acid consists of

18 atoms carbon (6×18) ..	108
8 atoms hydrogen	8
4 atoms oxygen (8×4)	32
	148

Cinnamon is a powerful aromatic and carminative. In moderate doses, it stimulates the stomach, produces warmth in the epigastric region, and promotes the digestive functions. The repeated use of it disposes to costiveness. In full doses, it acts as a general stimulant, exciting the nervous and vascular systems. It is frequently employed as a condiment, as also as a pharmaceutical agent. Medicinally, we employ it partly on account of its flavour, and in part for its aromatic and carminative properties. The oil is sometimes employed as a powerful stimulant in paralysis of the tongue, in syncope, or cramp of the stomach.

Aqua cinnamomi is obtained by distilling the bark or oil with water.

The *spiritus cinnamomi* is prepared by distilling a spirituous solution of the oil. Its dose is an ounce or two.

The *tinctura cinnamomi* is prepared with proof spirit. Its dose is one or two drachms.

The *tinctura cinnamomi composita* is prepared by digesting cinnamon, cardamoms, long pepper, and ginger root, in proof spirit. Its dose is the same as the simple tincture.

The *pulvis cinnamomi compositus* is prepared with the same ingredients as the compound tincture, the spirit excepted. Its dose is from five to ten grains.

Cinnamon bark enters into the composition of many other officinal compounds, namely, compound infusion of catechu, aromatic spirit of ammonia, compound spirit of lavender, compound tincture of cardamoms, tincture of catechu, aromatic spirit of æther, wine of opium, aromatic confection, compound powder of chalk, and compound powder of kino.

3. *Cinnamomum aromaticum.*

This plant is known by the various names of Cinnamomum cassia, Laurus cassia, and Persea cassia. According to Blume, it is a native of China, and is cultivated at Java.

This tree is said by Nees to yield the *Cortex cassia* or *Cassia lignea* of the shops; but Mr. Marshall asserts that it is never decorticated, and that the cassia bark of the shops is only a coarse cinnamon obtained from the thick roots or large branches of the cinnamon tree.

The *cassia buds* of the shops (*flores cassiæ nondum explicati*) are the dried unripe flower buds of, according to Nees, the Cinnamomum aromaticum, as well as C. dulce; but according to Mr. Marshall, Cinnamomum zeylonicum yields them.

Cassia bark and cassia buds agree with cinnamon bark in their medicinal qualities. Their aromatic and carminative qualities reside in an essential oil (*oleum cassiæ*), which is usually substituted for the oil of cinnamon.

4. *Camphora officinarum.*

The well-known substance termed camphor is obtained from a tree which has had various names given to it, such as Laurus camphora, Persea camphora, Cinnamomum camphora, and Camphora officinarum. It is a native of China and Japan, and belongs to *Enneandria Monogynia*.

Every part of the plant, but especially the flower, shows by its odour and taste that it is strongly impregnated with camphor. The trunk, branches, and root of the tree, is cut into small pieces, and put into a still with water, which is kept boiling for forty-eight hours: by this process the camphor is volatilized, and condensed in the straw with which the head of the still is lined. The camphor thus obtained is denominated *rough* or *crude camphor* (*camphora cruda*), or the *unrefined camphor of commerce*. It consists of dirty greyish or reddish grains, which, by their mutual adhesion, form various sized masses. In this state it is imported into this country, and is refined by subliming it with a small quantity of quick lime.

Refined camphor is met with in the form of large hemispherical cakes, perforated in the middle. It is a translucent substance, with a crystalline fracture; lighter than water. It readily sublimes in vessels exposed to the light, and crystallizes on the side of the bottle. It melts at 288° F., and boils at 400°. It is combustible in the air, burning with a clear light and much smoke. By the addition of a few drops of alcohol to it, we may readily pulverize it. It is slightly soluble in water, but very soluble in alcohol. If water be added to the alcoholic solution, the camphor immediately separates; but if the solution be previously distilled, this separation does not take place. Camphor is soluble in the fixed and volatile oils.

Composition.—According to Dumas, camphor consists of

10 atoms carbon (6×10)	60
8 atoms hydrogen	8
1 atom oxygen	8
	76

Now it is remarkable that the only difference in the composition of oil of turpentine and of camphor is, that the latter substance contains an atom of oxygen. This and some other reasons have led Dumas to assume that camphor is an oxide of a compound base, to which the name of *camphogen* (*camphogène*) has been given. On this view, then, camphor will consist of

1 atom camphogen	68
1 atom oxygen	8
1 atom of camphor, or protoxide of camphogen	76

Nature of camphor.—Camphor may be regarded as a concrete volatile oil. It is well known that the volatile, like the fixed oils, are composed of two oils, one having a congealing point lower than the other. The most congealable oil is termed by Berzelius *stéaroptène* (from στεαρ, *suet*, and πτηνον, *volatile*); the least congealable one he calls *eléoptène* (from ελαιον, *oil*, and πτηνον, *volatile*). Those volatile oils, which easily concrete at common temperatures, consist principally or wholly of stéaroptène. Properly speaking, therefore, camphor is the stéaroptène of the Camphora officinarum. This view of the nature of camphor is confirmed by the products of the Dipterocarpus camphora, which are both solid and fluid,—the solid (called Sumatra camphor) being the stéaroptène, the fluid (termed camphor oil) being the eléoptène.

Gmelin and some other German chemists apply the term camphor in the sense Berzelius uses the word stéaroptène; and, by way of distinction, the camphor of the shops is termed *common camphor*.

Camphor possesses basic properties: thus, if camphor be added to cold nitric acid, a liquid is obtained called *oil of camphor*, but which is in reality a *nitrate of camphor*.

Camphoric acid.—By distilling repeatedly nitric acid from camphor, there is formed in the retort a crystalline acid called *camphoric acid*, while the binoxide of nitrogen escapes. Before the whole of the camphor has become converted into camphoric acid, there are formed camphorates of camphor. Camphoric acid consists of—

10 atoms carbon, 6 × 10	60
8 atoms hydrogen	8
5 atoms oxygen, 8 × 5	40
1 atom camphoric acid........	108

Or we may regard it as composed of—

1 atom camphogen	68
5 atoms oxygen, 8 × 5	40
1 atom camphoric acid	108

Artificial camphor: Hydrochlorate of oil of turpentine.—By transmitting muriatic acid gas through the oil of turpentine, a white crystalline product is obtained, having an odour somewhat analogous to camphor, in consequence of which it has been termed *artificial camphor*. It consists of—

20 atoms carbon, 6 × 20 ······	120
17 atoms hydrogen ············	17
1 atom chlorine ··············	36
	173

Or we may regard it as being composed of—

20 atoms carbon, 6 × 20 ····	120	equal to one atom oil of turpentine, or to two atoms camphogen.
16 atoms hydrogen ··········	16	
1 atom hydrochloric acid····	37	
	173	

Physiological effects of artificial camphor.—The action of artificial camphor is, according to Orfila, different to that of officinal camphor: it produces no lesion of the nervous system, and confines its action to the production of a few small ulcers in the mucous membrane of the stomach.

Physiological effects of camphor. (*a.*) *On animals.*—If camphor be dissolved in oil and administered to dogs, it brings on tetanic convulsions, a kind of delirium, and, ultimately, insensibility and death. When administered in substance, it inflames the digestive tube, and causes ulceration. Schudery states it affected the urinary organs, causing strangury.

(*b.*) *On man.*—Judging from the statements of different experimenters, the effects of camphor on the human body are not uniform. In *moderate doses* (as from five to ten grains) it frequently increases the fulness of the pulse, raises the temperature of the surface of the body, and, if the skin be kept covered, and warm diluents administered, it generally operates as a powerful sudorific: however, these effects are not constant. Mr. Alexander swallowed a scruple of camphor, and observed that his pulse fell from 68 to 65 beats per minute. The thermometer applied to the pit of the stomach did not indicate any increase of heat. In *excessive doses* it acts as a powerful poison. The best related case is that of Mr. Alexander, who swallowed two scruples in syrup of roses. In about twenty minutes he experienced lassitude and depression of spirit, with frequent yawnings: at the end of three-quarters of an hour his pulse had fallen from 77 to 67. Soon after he felt giddy, confused, and was almost incapable of walking across the room. He became gradually insensible, and in this condition was attacked with violent convulsions and maniacal delirium. From this state he awoke as from a profound sleep; his pulse was 100, and he was able to reply to interrogatories, though he had not completely recovered his recollection. Warm water being administered, he vomited up the greater part of the camphor, which had been swallowed three hours previously; and from this time he gradually improved.

Modus operandi.—Tiedemann and Gmelin detected the odour of camphor in the blood of the vena porta, and of the mesenteric veins of dogs and horses to whom this substance had been given, though they could not recognise it in the chyle: hence it would appear that this substance is absorbed. That this is the case is further proved by the odour of the breath.

From the convulsions which are produced, it is inferred camphor acts on the spinal marrow, while the delirium and insensibility appear to shew its action on the brain.

Uses of camphor.—Camphor at the present time is but little resorted to as a medicine. Non-professional persons frequently use it as a prophylactic against contagion, the camphor being placed in a little bag and suspended from the neck. I need hardly say, it is totally useless. It has been of late years asserted, that if a camphorated ointment be applied to the face, no small-pox pustules will make their appearance there; but the statement is not correct. Dupasquier has proposed camphor fumigations in chronic rheumatism, and some other forms of disease. The patient may be in bed, or seated in a chair; and in either case is to be enveloped by a blanket tied around the neck. About half an ounce of camphor is then to be placed on a heated metallic plate, and introduced within the blanket,—under the chair, if the patient be seated. It acts as a powerful sudorific. As counter-irritants, various solutions of camphor are frequently employed, in chronic rheumatism, in bruises and sprains, and in neuralgic pains.

As a moderate stimulant and diaphoretic, camphor has been employed in fevers of a low or typhoid character, in the exanthemata to promote determination to the skin, in chronic rheumatism, and in various affections of the nervous system, unaccompanied with much vascular excitement, as some forms of mania, puerperal convulsions, and hysteria.

From its supposed influence over the

urinary organs it has been employed in poisoning by cantharides; but further evidence is wanting to prove its power in this respect.

It has been employed also as an anthelmintic against the ascaris lumbricoides, or large round worm.

Camphor is usually given in substance in doses of from five to ten grains, in the form of pill. The *mistura camphoræ* contains so little camphor, that it is rather to be regarded as a vehicle for other medicines than as being of much value itself. The *spiritus camphoræ* is used only as an external application to chilblains, and in chronic rheumatism. The *tinctura camphoræ composita* contains camphor, but its most active ingredient is opium, and as such it has been before mentioned. The *linimentum camphoræ* is a solution of camphor in olive oil, and is used as a stimulant embrocation in chronic rheumatism. The *linimentum camphoræ compositum* is a much more powerful compound: it is prepared by dissolving camphor in solution of ammonia, and adding spirit of lavender. Camphor is an ingredient in two other preparations, namely, the *linimentum hydrargyri*, and *linimentum saponis compositum*.

5. *Sassafras officinalis.*

This tree (also called Laurus, or Persea Sassafras) grows in Florida, Virginia, and other parts of America. It belongs to *Enneandria Monogynia*. The officinal parts are the wood and the root. The *lignum sassafras* of the shops is obtained both from branches and roots: the pieces which are imported sometimes have parasitic plants adhering to them, proving they are not roots. The wood is yellowish or reddish, porous, and light, and has a strong and remarkable odour, and an aromatic taste. In the shops we also find a cortex sassafras, in fragments of a few lines thick, with a grey epidermis. Both the wood and the bark owe their odour, taste, and medicinal activity, to a volatile oil—the *oleum sassafras*. This oil possesses acrid properties, while the wood and bark are stimulant and sudorific: they excite the action of the heart and arteries, and if taken in the form of infusion, and assisted by the use of warm clothing, usually act as sudorifics. In cutaneous, rheumatic, and venereal diseases, we sometimes obtain benefit from these properties of sassafras, but we must be cautious not to give it when a febrile or inflammatory condition of the system exists, on account of its stimulant properties. It is best given in the form of infusion. In the London Pharmacopœia there is only one compound in which it is ordered—namely, the *compound decoction of sarsaparilla*. It must be recollected, however, that boiling dissipates the oil, on which the activity of the sassafras depends.

6. *Ocotea Pichurim.*

The *Sassafras*, or *Pichurim* nuts of the shops, are the fruit of this plant.

DIPTERACEÆ.

This family contains no officinal substance; but must not, however, be passed over, as it contains several plants deserving notice.

1. *Dipterocarpus camphora.*

This tree, also called *Dryobalanops camphora*, and by Roxburgh, *Shorea camphorifera*, is the celebrated camphor tree of Sumatra and Borneo, and belongs to *Polyandria Monogynia*, in the Linnæan arrangement. From the stems are obtained two substances,—one a crystalline solid, denominated camphor; the other a liquid, called oil of camphor.

1. *Sumatra camphor: Camphor of the Dipterocarpus.*—This substance is found in great purity in the interstices of the woody fibres of the Dipterocarpus. On account of its high price it is rarely met with in commerce. For the specimens in my museum I am indebted to Mr. Gibson (of the firm of Howard, Jewell, and Gibson, of Stratford), who says, "they are part of two very small boxes imported about 20 years ago, which were bought by me at the common price of camphor at the time, but which, it was afterwards discovered, were invoiced at an enormous price. Our firm gave them up to the importers, reserving samples, and they were re-shipped for India. I never on any other occasion, except one, saw a small specimen of what I have named *native camphor*." This kind of camphor possesses several distinctive characters, which were pointed out by the late Dr. Duncan: thus it is heavier than water; when shaken in a bottle it gives a ringing sound, very different to that of common camphor; and it does not so readily sublime and condense in crystals in the upper part of the bottle as ordinary camphor.

2. *Liquid camphor: Camphor oil.*— This liquid is very rarely met with in commerce. Some years ago ago a small quantity was imported from Manilla, for the use (as the importers told me) of perfumers. It is a limpid colourless liquid, having the odour of camphor combined with that of the juniper.

2. *Shorea robusta.*

This tree is a native of Hindostan, and belongs to *Polyandria Monogynia*. It yields a resinous substance frequently met with in this country under the name of *dammar*: and which is whitish and opaque externally, but transparent internally.

FIG. 137.—*Shorea robusta.*

3. *Vateria Indica.*

This tree yields the resin known in this country by the name of *gum animi.*

URTICACEÆ.

In this family there are several officinal substances to be noticed.

1. *Humulus lupulus.*

This is a well-known indigenous perennial plant, the female of which is largely cultivated for brewing. It belongs to *Diœcia Pentandria*, of the Linnæan classification.

The officinal part of the plant is the aggregated fruit, denominated *strobiles*, *catkins*, or *cones*. These are ovate, and consist of the enlarged, imbricated, membranous scales of the perianth, glandular at their base, and inclosing the fruit properly so called. The fruit consists of small, globose, erect, monospermous camaræ, having a hard fragile pericarp, covered with superficial aromatic globose glands. The contained seed is pendulous, and covered with a thin membranous testa: the embryo is exalbuminous and spiral, with long cotyledons, and a rounded radicle pointing to the hilum.

The little glands called *lupulina*, *lupuline*, *lupulite*, *pollen of the leaves*, or *yellow powder*, are the most important part, since in them resides the peculiar properties of the hop. Raspail has given a good account of their organization and microscopic analysis. When recently obtained from the living cone they are pyriform, and have a peduncle terminated by a hilum. When dried their colour is golden yellow; they are somewhat transparent, and flattened, presenting on some point of their surface the mark (*hilum*) of their attachment to the organ that produced them. The structure of these glands is cellular. By immersion in ammonia or muriatic acid, they emit a vesicle or tube, somewhat analogous to the tube emitted by grains of pollen during their explosion; this tube is formed at the expense of the internal cells, which are drawn out through the hilum. These glands contain in their cells volatile oil (on which the aroma of the hop depends), resin, wax, a bitter substance, and gluten.

Physiological effects.—The odorous matter (that is, the volatile oil of the lupulinic glands) is said to possess a narcotic property; and, in proof of it, we are told that persons who have remained for a long time in hop warehouses have become stupified. Moreover, it is said that a pillow of hops prescribed for George III. acted as a soporific.

The infusion and tincture of hops act as pleasant and aromatic tonics, promoting the appetite, and assisting digestion. In very large quantities, or in irritable conditions of the alimentary canal, they become local irritants. Diuretic and sudorific effects have been ascribed to the infusion of hops. A slight soporific property is also said to be possessed by hops; and part of the sleepy effects of beer has been ascribed to them.

Uses.—Hops are principally employed in the manufacture of beer: they communicate a pleasant bitter and aromatic flavour, —they check acetous fermentation,—and by their tonic properties assist digestion.

Medicinally they have been used for various purposes: thus, as a tonic and stomachic in dyspepsia,—as a narcotic and sedative in maniacal affections,—and as an application to ill-conditioned and gangrenous sores, either in the form of a poultice, or made into an ointment with lard.

For internal exhibition, we may use an *infusion* of hops, prepared by adding half an ounce of hops to a pint of boiling water; the dose being two fluid ounces. In the Pharmacopœia we have a *tincture*, made with proof spirit, the dose of which is about one or two drachms. We have also a watery *extract*, but which is of doubtful efficacy, for it is devoid of the aromatic quality of the hops.

Effects and uses of lupuline.—Lupuline is aromatic and tonic, but the narcotic properties which have been ascribed to it are of doubtful existence. It may be given in substance, in doses of six or twelve grains; or a tincture may be prepared by digesting two ounces of lupuline in a pint of alcohol: the dose is one or two drachms.

2. *Ficus Carica.*

The fig tree came originally from the East, but is now commonly met with in our gardens. The Linneanists are not all agreed as to its class and order. Thus—

Linnæus placed it in Polygamia Triœcia.
Willdenow in .... Polygamia Diœcia.
Persoon in .... Diœcia Triandria.
Sprengel in........ Monœcia Androgynia.

Fig. 138.—*Ficus Carica.*

The flowers are situated in pyriform receptacles (fig. 139, A), placed in the axilla of leaves. These receptacles, whose sides are thick and fleshy, have been mistaken for fruit, although, properly speaking, the fruit are small caryopsides, similar to seeds. The peduncle, or rather floral branch, which supports this head of flowers, is articulated, and hence, when the fruit is ripe, the whole falls at once, like in the catkin. At the base of each receptacle are two or three bracteal scales (fig. 139, A, *a a*): the top of the receptacle is pierced by a mouth, closed by numerous scales placed in several rows (fig. 139, A, *b*). A transverse section of this receptable (fig. 139, B) exposes the flowers (*a*), seated in its inner side (*b*). The male flowers (E) consist of a tripartite calyx, with three stamina: the female flowers (C) have a five-parted calyx, an unilocular ovarium (D), and a lateral style, terminating in two filiform stigmata.

The fruit of the fig tree is called a *Syconus*; it consists of the fleshy hollow

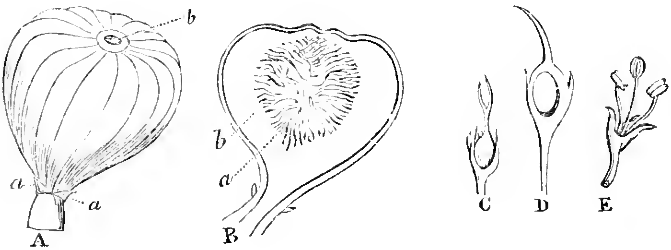

Fig. 139.—*Ficus Carica.*

A, *Receptacle.*
B, *Longitudinal section of ditto.*
C, *Female flower.*
D, *Longitudinal section of ditto.*
E, *Male flower.*

receptacle containing the dry *caryopsides*. When ripe, figs are dried in ovens, and afterwards packed in small chests, in which state they are imported into this country. To those fond of figs, I recommend the perusal of the following extract from *Madden's Travels*. "A more disgusting operation than the packing of figs, I never witnessed. In an immense warehouse, the fruit lay strewed over the floor, and fifty or sixty squalid women, with mewling infants, sat squatted on the heap, picking and stretching the fruit, and overcoming its tenacity with saliva and manipulation. I saw the dirty children mangling the figs, and got out of the way lest I should witness any thing worse. I made a vow against figs."

Physiological effects and uses.—Figs are nutritive and emollient. In those countries where they are plentiful, they are used as food, and here are employed as a dessert. Medicinally they may be employed either roasted or boiled, as cataplasms, to promote the suppuration of small abscesses within the mouth. The sacred writings inform us that Hezekiah (who lived nearly 600 years before Christ) used figs as an application to a boil. Internally, they are used as emollients; decoctions of them are used in eruptive fevers, and in pulmonary and nephritic affections. They enter into the composition of the *compound decoction of barley*, and the *confection of senna*.

3. *Morus nigra.*

This plant is a native of the southern parts of Europe, and is usually placed by the Linneanists in *Monœcia Tetrandria*, but Sprengel puts it in *Tetrandria Digynia*.

Fig. 140.—*Morus nigra.*

The fruit (which is the officinal part) is called a *sorosis*, and is formed by the cohesion of the ovaria of several flowers. It consists principally of sugar, tartaric acid, and red colouring matter. It is alimentary in a slight degree, and refrigerant; in large quantities, it is laxative. Used in fevers, it allays thirst, and diminishes febrile heat. The *syrup of mulberries* is given to children for the same purposes.

Dorstenia.

In the Pharmacopœia, *Dorstenia Contrajerva* is said to yield the Contrajerva root of commerce; and probably the statement may be correct as far as it relates to that which comes from Peru, Chili, and Mexico. Part of the Contrajerva root of commerce, however, comes from the Brazils, and is probably obtained from *Dorstenia Brasiliensis*

The Dorstenias are placed by some in the class *Tetrandria*, by others in *Monœcia*. Sprengel, the latest systematic writer on the Linnæan system, places it in *Monœcia Androgynia*. The flowers are immersed in a large flattened, or rather slightly concave, nearly quadrangular receptacle (fig. 141, A.) The male and female organs are so placed, that some regard them as forming separate flowers, and the plant, therefore, as being unisexual or monœcious. Others, however, consider them as constituting hermaphrodite flowers.

The male flowers are seated in superficial hollows of the disk, and consist of a bipartite calyx, and a variable number of anthers, from one to five. The female flowers are placed in deep hollows, or pits, and consist of a calyx with four inflexed teeth, a roundish germen, and a bifid style.

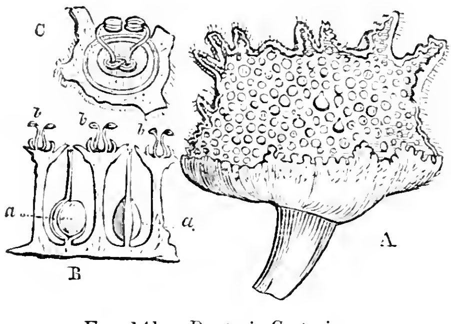

Fig. 141.—*Dorstenia Contrajerva.*

A, *An entire receptacle.*
B, *Section of a receptacle.*
(*a.*) *Female flowers.* (*b.*) *Male flowers.*
C, *A male flower in its superficial hollow.*

The principal constituents of this root are æthereal oil, bitter extractive, and starch.

The effects of Contrajerva root are those of a stimulant and tonic. It has been used in low fevers. The only officinal preparation of it is the *pulvis contrajervæ compositus*—composed of powdered Contrajervæ and carbonate of lime (prepared shells.) It is, however, rarely used.

OBSERVATIONS

UPON THE PREVAILING PRACTICE OF

FORCIBLY COMPRESSING THE ABDOMEN OF LYING-IN WOMEN.

By Hugh Ley, M.D.

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[Concluded from p. 918.]

There is one form of uterine hæmorrhage in which the bandage and compress are exceedingly useful, perhaps essential; not, however, for the purpose of restraining a flooding which still continues, but to prevent a relapse. This is the form so well described by Dr. Gooch, the hæmorrhage from vascular disturbance, in which the uterus, after having contracted, expelled the placenta, and assumed its usual size, form and hardness, yields again to the distending agency of blood poured into its cavity by the vessels in a state of excitement, unless that organ be prevented from again enlarging, by mechanical compression. But, useful as the bandage is in these cases, it is not until repeated gushes have reduced the volume and power, if not the frequency, of the pulse, that it is at all efficient. It may, indeed, moderate the extent of hæmorrhage; it may cause the blood to accumulate in the vagina, often distending that canal until it becomes an enormous pouch, flaccid and unresisting, like wet chamois leather, or to flow from the vulva, so as to afford external and unequivocal evidence of what is going on. But it has not the power of completely putting a stop to the flooding, until the turbulence of the circulation shall have been considerably subdued. Even then, the vessels, though still enfeebled, might yet allow a formidable or fatal drain into the cavity of the uterus, but for the interposition of the band and compress; which, partly perhaps, by the pressure which they occasion upon the weakened vessels, but principally, I believe, by the contraction of the uterine fibres, which they insure and perpetuate, are sufficient to intercept the blood in its course towards the inner surface of the uterus, and, consequently, to prevent its escape from the extremities of the arteries which open upon that surface. The duration of the hæmorrhage is thus shortened, and the life of the patient consequently preserved by forcible compression, from the omission of which, under such circumstances, I have known blood ooze from the minute vessels for many successive days, gradually accumulated within and distending the cavity of the uterus, expelled from time to time in the form of clots, reducing the powers of life to a degree only short of the destruction of life, and requiring at last the application of the band, and even, possibly, the introduction of the hand. In one case of this kind, in which I was consulted, such was the torpid and unresisting condition of the uterus from the loss of blood and frequent enlargement, that at the end of three days from the delivery I was obliged to introduce my hand for the purpose of removing clots and of exciting contraction; after which, a towel drawn tightly over the abdomen, with the addition of napkins thrust into the hollow space between the spinous processes of the ilia and the bandage, effectually restrained the hæmorrhage, and secured the patient from the recurrence of a flooding which had bleached the countenance, enfeebled to a serious degree the constitutional powers, and all but extinguished life.

This is, in fact, a most important part of the treatment of such cases. It is not enough that the uterus shall have been emptied of its contents, and excited to contraction by the means employed; it is further requisite to prevent that organ from again enlarging in the absence of the practitioner; and this can only be effected by the band and compress. But the application of the binder is not justifiable at the commencement even of such a hæmorrhage. I know but of one writer who even seems to place any reliance upon it at that period; and, from his mode of recommending it, his confidence in it is obviously far from unlimited. In his observations "On Uterine Hæmorrhage soon after the Expulsion of the Placenta," he says, "The abdomen should be strongly compressed with the binder, and folded napkins placed under it; and, in addition, the hands of an assistant should be applied over the fundus uteri firmly, to squeeze and press this organ." Now, it is clear that if the pressure of the bandage were sufficient, there could be no necessity for

additional compression by the hands of an assistant; and, further, that if the band were made, as it should be, of an inelastic material, and secured with the requisite firmness, it must rather have impeded, than facilitated, such additional pressure upon the fundus uteri. Besides, when the binder is thus applied, it prevents our grasping, and consequently irritating the very part of the uterus from which the blood notoriously issues; for, although in a spirit of hyper-criticism, Dr. Gooch has been represented as not appearing "to have known that the placenta is most frequently attached to the posterior and lateral parts of the fundus and body of the uterus;" at least the writer to whom I allude, and who thus reproaches my late friend and colleague, assumes it to be a fact, though without adducing evidence in its support; and yet, by his previous application of the "binder and folded napkins," he prevents the possibility of grasping between the fingers and the thumb the whole fundus uteri, including a portion of its posterior, as well as its anterior surface, and of exciting, therefore, the contraction of those very fibres whose agency is so desirable. But the fact itself is doubtful, or, at all events, there are not at present sufficient data to determine whether the placenta is in reality most frequently attached to the *posterior* and lateral parts of the fundus*. I have kept, indeed, no accurate record of the precise situation of the placenta in the numerous instances in which I have been called upon to remove it; but I have so frequently, in the course of this operation, been obliged to withdraw my left hand, which I had introduced because the curvature of the joints better corresponds with the hollow of the sacrum, and afterwards to introduce my right, that, still keeping the convexity of my hand in correspondence with the concavity of the uterus, I might peel off an adhering placenta firmly attached to the anterior surface, that my confidence in the truth of the alleged fact, that the placenta is "most frequently" fixed to "the posterior and lateral parts" of the uterus, is much shaken. Be this, however, as it may, at least there is not a shadow of foundation for an assertion which has been hazarded by a writer of great eminence, that "to discover this spot" (*i. e.* where the great bleeding vessels pierce the lining membrane of the uterus) "*at a time when there is no placenta within the uterus*, Dr. Gooch directs us to pass up the finger along the cord, and observe at its entrance into the uterus whether it turn towards the front, the back, the right or left side, or straight up to the fundus uteri." It is perhaps scarcely necessary to rescue one so celebrated from this posthumous attack upon his reputation. He was guilty of no such absurdity as that imputed to him, as is clear from the following sentence, which he who runs may read and understand, unless exceedingly obtuse in intellect or tainted by prejudice. "Besides," says Dr. Gooch, "*after the child is born, it is often several minutes before the placenta separates and descends;* if, DURING THIS INTERVAL, we pass up the finger along the cord, and observe at its entrance into the uterus whether it turn towards the front, the back, the right or left side, or straight up the fundus, we shall form a tolerably exact idea of the spot to which the placenta has been attached in this individual case." It was, therefore, before the expulsion of the placenta, and not, as has been represented, "*at a time when there is no placenta within the uterus*," that Dr. Gooch recommended the navel-string to be taken as a guide. If this guide had been removed by the expulsion or extraction of the placenta, then, as Dr. Gooch very properly observes, "it is true we cannot tell with certainty where the placenta was attached, and consequently where the pressure should be applied; but as it is generally attached to or near the fundus, if the pressure be directed there, it will generally be right*."

M. Gardien seems to think that a bandage, properly applied, may *diminish after-pains;* and he enumerates this, therefore, amongst its useful properties, and as a reason for its application. But it may well be doubted if it can exercise such influence, seeing that

* "Il est bien connu que le placenta s'attache tantôt au fond, tantôt en avant, en arrière, ou sur les côtés, et quelquefois sur le col de la matrice." —*Velpeau, Traité, &c., Tome* I. *p.* 279. Sur trente-quatre femmes, mortes enceintes, ou récemment accouchées à l'hôpital de Perfectionnement, j'ai vu que le centre du placenta devait correspondre vingt fois à l'orifice, *trois fois* en avant, *deux fois* en arrière, et trois fois au dessous de l'une des trompes, et six fois seulement vers le fond de l'uterus. *Ibid. p.* 298.

* Gooch on the Diseases of Women, p. 353.

pressure is one of our great and principal agents for producing uterine contraction,—that this is the object for which by most practitioners such pressure is employed,—and that such contraction is commonly the cause of the very pain which M. Gardien, and a few others, represent the bandage as useful in preventing or controling*. Experience has convinced me that the bandage, so far as it influences these pains, has a tendency rather to increase than to diminish them; more especially (as was long since noticed by Mauriceau, Peu, La Motte, Levret, and others) when the labour has been lingering, the effects violent, and the uterus consequently tender. When, therefore, these pains are inordinately severe, it is a good practical rule to examine the binder, and, if it appear to compress the uterus too firmly, to loosen it, or, what is still more desirable, to remove it. By so doing, the practitioner will be enabled to apply warm cloths, poultices, bags of hot bran or salt, the stomach-warmer, or fomentations, which, after opiates, are the most beneficial amongst our remedies: whilst the employment of these must be entirely prevented by the bandage. La Motte, an amusing, and, for the time at which he lived, judicious, though sometimes a diffuse writer, gives an instructive case of the injurious consequences of "swathing a woman's belly too tight;" and after having described the cure of this patient, whom he represents to have been "swathed to some purpose this time," the consequences being violent pains and fever, sudden cessation of the lochia, headache, and delirium, which yielded to first taking off the bandage and then applying upon the belly a compress dipped in warm milk, and throwing up a clyster of whey, he concludes with this reflection:—"Suppose this bandage was not attended with danger; as no good can result from it, is it not better to let women enjoy their liberty than to keep them sweating in this uneasy dress?"† Nor have I more confidence in Gardien's statement, that the bandage is capable of *preventing hernia;* on the contrary, like tight waistbands, it is infinitely more likely, by pressing upon the abdominal contents, to occasion than to prevent such complaint.

* Traité d' Accouchemens, tome iii. p. 236.
† La Motte, by Tomkyns, p. 494.

As to the *other effects*, ascribed to an alteration in the balance of circulation consequent upon delivery, and said to be prevented by a band, including inflammations, functional derangements of the liver and intestines, and even (according to Stoll and some others) puerperal peritonitis, they involve opinions far too speculative and hypothetical to influence our practice; and, I am inclined to think, are little better than mere make-weights, thrown into the scale to turn the balance in favour of the application of the bandage upon all occasions.

It thus appears that the binder is, at least, unnecessary in many cases; that it is an encumbrance upon some occasions, and especially in hæmorrhages, for the prevention and cure of which it has been so commonly recommended; that if applied judiciously, without unequal pressure and without much force, it is generally comfortable to the feelings, and perhaps beneficial in its effects; and that in some rare instances it is even essential to the well-doing of the patient: but it is equally clear, that the time and mode of its employment require more discrimination and attention than has been commonly supposed.

Injurious consequences of the Bandage.

It now remains for consideration how far the bandage, if it does no good, is capable of mischief. It is a general rule of almost universal application, that a remedy, if powerful for good, is, when injudiciously or unnecessarily employed, also powerful for evil; and it is so with these bandages, when applied so as forcibly to compress the fundus uteri. Those who have had opportunities of noticing the condition of the uterus where death has occurred soon after delivery, from any other cause than laceration or hæmorrhage, must have been struck with the bulk of the uterus and the extraordinary thickness of its parietes. This organ often reaches nearly to the umbilicus, and its walls are not unfrequently an inch and a half, or even more, in thickness. It occupies, therefore, considerable space, and is easily displaced from its situation by pressure upon its fundus. One effect, therefore, which is very frequently produced, when the bandage is drawn by one end whilst the other is fixed (and it is next to impossible altogether to avoid this) is *to force the uterus to one side of the abdomen.* This is commonly productive

of much uneasiness, referred generally to one hip, sometimes to both. The broad, and one, at least, of the round ligaments, are put much upon the stretch upon the one side; the appendages of the uterus, including the ovaries and fallopian tubes, very prone to take on inflammatory action, are pressed with force against the brim, formed by the prominent "linea ileo-pectinea," and the side of the hard bony pelvis on the other. Hence the foundation is often laid for permanent obliquity of the uterus, productive of considerable uneasiness, and, from an obvious agency, not unfrequently the cause of barrenness. That such obliquity of the uterus is thus occasioned, my own observation enables me to affirm, and is corroborated by the experience of my friend, Mr. Sweatman, who, as surgeon of one of our lying-in hospitals, as well as in his private practice, has had extensive opportunities of ascertaining the point, and who assures me that he has had frequently occasion to witness this result. But from the compression of the appendages of the uterus, to which I have alluded, there is reason to believe that much more formidable evils have occasionally occurred. When these important parts become inflamed after delivery, the disease is apt to degenerate into destructive or suppurative inflammation, and the very worst kind of puerperal fever consequently engendered. In such cases, after death, the ovaries are often found either reduced to a pulp, so as to break down upon the slightest handling, or matter is found deposited in their substance or upon their surface; and the lymphatic vessels, sometimes the veins, are seen, in their course towards the general venous circulation, charged with pus. Even the fallopian tube has frequently undergone a similar change, its fringed extremity being loose and lacerable in texture, and pus being frequently found in its interior or upon its surface.

Another effect of forcibly compressing the uterus must inevitably be *to push that organ lower into the cavity of the pelvis*, which some have even gone so far as to consider desirable, and to recommend the practice for that express purpose. By the very terms of this proposition, it is obvious that the tendency to prolapsus uteri, against which a large proportion of our observances after delivery are directed, must be thus very seriously increased. Even in the unimpregnated condition of the uterus, the means by which it is supported in its position are only capable of sustaining a given superincumbent pressure. Whatever can greatly increase its weight, or press considerably upon its summit, may push it below its natural situation; and hence Gardien, who has given a more copious enumeration of the causes of this disease than any other author with whose writings I am familiar, has mentioned, amongst those which may produce the disease in all women indiscriminately, "sudden and violent exertion of the body; carrying heavy weights upon the abdomen; *violent pressure upon that region*, whether accidental or habitual—whether from the weight of sarcomatous tumors, or steatomatous tumors of the mesentery; the violent shock produced by falling from a height upon the feet; riding in a rough jolting carriage; the strainings of constipation, sneezing, or coughing; long-continued purging, attended with straining; the abuse of purgatives; and long continuance in the erect posture." Now if these causes, to which I might add calculus of the bladder (as in an interesting example recorded by Mr. Paget, of Leicester), enlargement of one or both ovaries, ascites, and fibro-cartilaginous tumors upon the summit of the uterus, can produce prolapsus even in those in whom there is nothing peculiar ("chez toutes les femmes indistinctement"), *à fortiori*, at a time when the uterus is large, thick, firm, and heavy, and the vagina relaxed—when moderate traction upon a navel-string may pull down the uterus, or the erect or sedentary posture occasion it to descend by its own gravity—we may conclude that pressure upon the summit of that organ by a "bandage consisting of a broad strip of some unyielding material (a jack-towel, for instance)," aided by the application of "two or three napkins, folded up as a pad, directly over the uterine region, &c." and then drawn "as tightly as the woman can conveniently bear it over these," by which means the uterus is compressed "as effectually as if the hand were constantly upon it," must be calculated to produce a similar effect; and such is the result of actual experience, for I have again and again traced the first occurrence of prolapsus to this cause.

But not only is the uterus, by such pressure, pushed downwards into the

pelvis, carrying with it the reflected vagina, but the *latter canal is sometimes thrown into folds;* the whole circumference descending, in some instances, until it forms a tumor of very considerable bulk at the vulva. I have seen it as large as the two fists united by their palmar surfaces, or a rock melon of considerable size. Such tumor is less firm in texture than the uterus, and has a patulous orifice at its most depending part, into which the whole length of the finger may be introduced without reaching the os uteri, which still remains within the cavity of the pelvis. This disease would almost appear to have increased in frequency, *pari passu*, with the increasing prevalence of the practice of compressing the summit of the uterus after delivery. When Sir Charles Clarke published his "Observations on the Diseases of Females," so little was this complaint known, that, not aware of the existence of such a malady, he applied the term "procidentia vaginæ" to a morbid condition of the rectum, which is to that canal what the procidentia vesicæ is to the bladder; both diseases consisting of a descent of one portion of the organ (the anterior of the rectum, the posterior of the bladder); each, however, carrying downwards the portion of the everted vagina attached to it. To this complaint I have been in the habit of appropriating the term prolapsus, or procidentia recti, from the analogy which it bears, in cause, consequences, and treatment, to the prolapsus or procidentia vesicæ, and to distinguish it from the prolapsus ani, in which the whole circumference of at least the mucous lining of the bowel descends so as to form a tumor at the anus, but altogether unconnected with the vulva, and uncovered by everted vagina.

I have seen numerous instances of this complaint, which I suspected to arise from this cause, but none in which their relation to each other was more strikingly manifest than one which occurred to me in the course of last year. This was the case of a lady, who, whilst in India, had flooded so violently, in the course of a miscarriage at about the middle period of gestation, that her life was despaired of. After cold and the *plug* had been very sedulously employed, a bandage was applied so tightly as to impede her breathing; and her recollection was equally distinct as to the addition of a compress to the lower part of the abdomen. Her constitution was much shattered by the loss of blood; she complained of a very distressing sense of relaxation, combined with fulness within the pelvis; and at length she yielded to the urgent recommendations and remonstrances of her professional advisers, backed by the entreaties of her husband, and returned to her friends in England, for the benefit of her health.

She improved in her general health upon the voyage, but although she used very sedulously a lotion, of which her supply was abundant, sea-water, her local grievance continued. Upon her arrival she consulted a very eminent practitioner of midwifery, who, telling her that her complaint was the descent of the womb, assured her that time and a pessary (with which he provided her) would cure her malady; that it would be unnecessary to do more than to wear the instrument constantly, with the exception of its occasional removal for the purpose of cleanliness, and to throw up, by the side of the pessary, an astringent wash; that she might go with safety to her friends in Northamptonshire; that he should not require to see her again for a very considerable period, and that it would be unnecessary for her to consult any practitioner in the country. The last statement she construed into an injunction not to see any other medical man, which she most rigorously observed; and was the more ready to obey, from a dislike, engendered by great reserve and delicacy, to talk about her peculiar malady; and for some months, therefore, she consulted no one.

After more than twelve months had elapsed, finding that she gained little ground, and that something was constantly slipping down by the side of her pessary, by which it was sorely pinched, she placed herself under my care. Upon examination, it appeared that although the uterus was somewhat below its average position, the vagina was principally in fault. This had been thrown into numerous folds of considerable size, and of such thickness as to lead to the impression that either the whole elastic substance of the vagina had descended, as well as its mucous lining; or if the latter only had been thrown into folds, it was obvious that

the membrane had become greatly thickened. The sensation communicated to the examining finger was like that which might be expected to be produced by cramming into the vagina the arm of a lady's long glove, composed of fawn or thin doe-skin, or even calf-skin, previously soaked in water, and forced in the direction of its long axis into a cylinder not more than half its length. It was the descent of one or more of these folds of vagina between the pessary and the circumference of the pelvis, that produced the pinching sensation, which was often so distressing, and occasioned such tenderness, as to oblige her to relinquish for days, and upon some occasions even for weeks, the use of her pessary.

It was manifest that, in this case, no pessary, which would not in the first place reduce the vagina to a plain surface, could be of avail, and that for this purpose a large one would be requisite. An elastic gum pessary, of large bulk, of an oval shape, and very softly stuffed with horse-hair, was introduced. She was directed to remain in bed until she became somewhat accustomed to the distension from the instrument, to remove it at the end of every few days, that she might clean it, then to remain a night without re-introducing it, and, upon such occasions, thoroughly to sluice the canal with a moderately astringent wash. At the end of a few weeks she had not only lost the sensation of pinching, but the bladder performed its function without difficulty, and she could enjoy the luxury of a walk, which, from the period of her arrival from India, she had not been able to accomplish. I was able, after some months, to diminish the size of the instrument, and, at length, having supplied her with a stock of pessaries of gradually decreasing size, and having increased largely her stock of spirits in consequence of the improvement in her condition, I was able to sanction her return to the East.

The evils I have thus adverted to are of no inconsiderable importance, and of no unfrequent occurrence. Though little noticed by writers, they occasion great permanent discomfiture, depress the spirits, and undermine the health. La Motte is almost the only author who has particularly noticed any one of these injurious consequences of "this bandage," which, "if improperly used, is attended with danger, being liable, by its too great tightness, to expose women to a relaxation of the uterus, which may thereby be forced too much downwards; as also to cause an entire suppression of the lochia, with all its concomitant symptoms *." But such evils are not the less real because they have escaped observation; and such remote consequences should influence our decision, and modify our practice as to the time when, and the manner how, the binder should be applied. It may still be employed "dans l' intention de satisfaire une vaine coquetterie" (Velpeau), "to give a comfortable degree of support," (Gooch) "so as to give an agreeable support to the muscles" (Blundell), and probably to diminish the disposition to syncope; but for these purposes the compression should be equal, and to a moderate extent only. In the language of Mauriceau, sanctioned, by adoption, by La Motte, Peu, Levret, Gardien, Velpeau, and others, it should be "simplement contentif†." The rules upon this point laid down by Gardien are very judicious, and contain almost all that need be said upon the subject. They are these: 1st, that the bandage should support the viscera without compressing them; 2dly, that it should never be employed when there is abdominal pain, or any disposition to inflammation; and, 3dly, that when first applied it should be sufficiently loose *to allow the hand to pass easily between the abdomen and the bandage*‡.

The precise form of the bandage is of less moment than the principles which should regulate its application. The loose and open skirt with a broad band, generally provided for lying-in women, and denominated the guard, commonly answers the object of thus giving the proper support to the abdominal parietes and viscera. When, however, the patient is allowed to move from her bed, she may use either a band made expressly for the purpose, as Gaitskell's bandage, minutely described by Dr. Blundell§; or the flannel binder before adverted to, as recommended by Dr. Collins, of Dublin. But as the inten-

* La Motte, by Tomkyns, p. 493.
† Malad. des femmes, liv. iii. c. 2. Also, Aphor. 250.
‡ Traité, &c. pp. 236, 237, 238.
§ Obstetricy, p. 726, note.

tion in these cases is rather to avoid than to produce any considerable pressure upon the uterus, all pledgets, pads, and compresses, whether in the form of folded napkins, commended by the majority of writers, or the small pillow suggested by Dr. Blundell, should be discountenanced, as producing great heat and sweating in the part, as occasioning unnecessary pain, and as having a tendency to force the sexual organs below their average position.

The only legitimate object for the application of the compress is, where hæmorrhage subsequently to delivery has occurred and been restrained, to obviate the disposition to enlargement of the uterus from the accumulation of clots. For this purpose the binder must be drawn tight, even to the extent of embarrassing somewhat the action of the respiratory organs; and the pressure must, in such cases, be directed to the uterus itself, by napkins thrust beneath the band. When, however, under such circumstances, this forcible compression of the uterus is required, it must be considered as a remedy to which we are driven to have recourse by a stern necessity; as one by no means devoid of mischievous properties; as employed, therefore, only to avoid or counteract another and a greater evil; is never to be continued longer than is justified by the necessity; and, therefore, to be removed, or at least loosened, and the compress to be taken away, when the patient has been entirely free for twelve hours from flooding. I would add, that where the uterus has been thus compressed, double caution is requisite to prevent the patient from getting into the erect or sitting posture, until all coloured discharge shall have ceased, and until the attempt can be made without producing any dragging sensation in the back, hips, and groins; for the cessation of such discharge, and the absence of such sensations, are the only proofs we can obtain, that the vessels of the uterus have regained their orthodox size, and that the uterus has no longer any excess of bulk and weight which may cause its descent in the erect posture of the trunk.

With these precautions the bandage may be made an useful obstetrical instrument, tending to the immediate comfort, perhaps the benefit, of the patient; but if employed indiscriminately, and so as to press with great force in the direction too commonly recommended, it is infinitely more frequently mischievous, than ben[illegible]ration.

25, Half-moon-Street,
Sept. 3, 1836.

SKETCH
OF

THE COMPARATIVE ANATOMY OF THE NERVOUS SYSTEM;

With Remarks on its Development in the Human Embryo.

By John Anderson, M.E.S.
Hon. Fellow of the Physical Society of Guy's Hospital.

[Continued from p. 912.]

Let us now turn to the consideration of the spinal cord in the early human fœtus, and see what analogy it bears to the same part as just described in fishes. At the third month (according to Tiedemann) the spinal cord of the human fœtus represents a hollow cylinder, having a longitudinal groove on its anterior and posterior aspects, and containing a central canal which traverses its whole extent, and, precisely the same as in the fishes, dilates at the upper part to form the fourth ventricle, which is also, as in them, only partially covered in by the cerebellum. In the fœtal pig at the third week I found the spinal cord completely divided into lateral portions by the anterior and posterior longitudinal fissures, and hollowed out by a large central canal. The exposed fourth ventricle presented a completely similar appearance to the same part in the fishes. Again, in the young embryo, as in the fishes, the volume of the spinal cord is very considerable in proportion to the brain, and, as in them, of nearly equal width with this latter. With regard to its extent, during the early months it fills the whole vertebral canal, extending to the sacrum and coccyx, and no caudiform expansion exists; and I have just demonstrated that in fishes the spinal marrow is prolonged into the extreme point of the caudal extremity of the animal, and terminating simply in a point.

In the fœtal pig at the third week I traced the spinal cord to the extreme point of the body of the animal, and found it also terminating in a point; the same was observed in the early fœtus of the mouse and hedgehog. The superior portion of the spinal cord, the medulla oblongata, is large and broad in the human fœtus at the third month; the pyramidal fasciculi, forming a broad and plane surface, are seen continuous with the crura cerebri, as in the fishes; and the restiform bodies, after separating to form the cavity of the fourth ventricle, pass into the cerebellum.

Resuming the general description of the nervous system in the fishes, the brain, especially in the lowest of the class, presents quite the appearance of a series of ganglia developed on the superior surface of the cords of the spinal marrow. In all the species I have examined I have found it extremely small, and by no means filling the cranial cavity, excepting in the mackarel, where the volume of the brain and of the cavity destined to receive it were nearly equal. Its very small size is at once evident by comparing its weight with that of the whole body of the animal: thus I found in a chub, weighing 842 scruples, the brain weighing only one scruple, the proportions being as 100 : 84,200; in a carp, weighing 11,280 grains, the brain weighing only fourteen grains, the proportions being as 100 : 80,600; in a roach, weighing 5030 grains, the brain weighing only nine grains and a half, the proportions being as 100 : 52,900; and, as I before observed, in a lamprey weighing 570 grains, the brain weighing only four-tenths of a grain, the proportions being as 100 : 142,500. We thus observe how little relative size the brain bears to the rest of the body, and consequently how small is as yet the encephalic mass. On taking a general review of the conformation of the cerebral masses forming the brain of fishes, we find it to consist of a suite of ganglia arranged behind each other—two pairs and a single one: 1st, there are two ganglia or lobes, situated the most anteriorly, the olfactory lobes; immediately behind which are two others, generally of larger size, the optic lobes; and behind these, again, is a single ganglion or lobe, situated in the median line, the cerebellum. On the inferior surface, immediately underneath the optic lobes, are two more ganglia.

This description of the primary cerebral mass in the fishes will be accurately represented in the human embryo at the middle of the third month, at which time, according to Tiedemann, the cerebral hemispheres, or primary cerebral mass, or olfactory tubercles, consist of two membranous vesicles covering the corpora striata and the optic chambers partially. The tub. quadrigemina and the cerebellum are quite exposed; their surfaces are quite smooth, and free from convolutions. The olfactory nerves are formed of two bands, terminating by a small rounded tubercle, which are hollow, and communicate with the lateral ventricles, which are at this time of large relative size. Also in the fœtal pig at the third week, I found the cerebral hemispheres consisting of two smooth and hollow membranous plates barely covering the optic thalami, which latter were of large comparative size, and divided by a fissure externally. In the fœtal sheep at the fourth week also, the cerebral hemispheres were smooth, and covered only the optic thalami. I observed the same peculiarities in the brains of the early fœtal hedgehog and mouse. Anatomical facts very similar to these have just been described in the fishes, particularly in the Plagiostomata, as the shark, where the primary cerebral mass for the first time contained a cavity which was prolonged into the olfactory nerves.

Turning to the consideration of the median cerebral mass, or optic lobes, or tub. quadrigemina, in the human fœtus at the age before spoken of (the third month), we find that they consist (according to Tiedemann) of two proportionally-large distinctly-separated masses, uncovered by the hemispheres, containing a large cavity, and giving partly origin to the optic nerves. I have myself found them large exposed masses in the fœtus of two months; and in the fœtal pig at the third week, and sheep at fourth week, in which latter they were placed immediately upon the optic thalami posteriorly. In the different species of fishes these lobes have been described as large, hollow, and exposed.

Amphibia and Reptilia.—We now proceed to the Amphibia, the Batrachia of Cuvier, which, in a system of

arrangement, I consider, with modern anatomists, as a class distinct from the true Reptilia; but their nervous system presenting so great a similarity in structure and conformation to that class, and, indeed, differing only in an inferiority of development, I will, to save time and space, notice the two classes of Amphibia and true Reptilia conjunctionally. The nervous system in these animals bears a great similarity in structure and development to the fishes, just noticed. The spinal cord presents much the same character as in the class before described, with regard to its relative size, its extent, (excepting in the frog) and its physical conformation. In a species of Triton weighing 39 grains, I found the spinal marrow weighing $\frac{1}{4}$ grain, and the brain only $\frac{1}{7}$ grain, the proportion being as 100 to 180. We thus observe that the weight of the spinal marrow preponderates over that of the brain, although not to so great an extent as in the fishes, in consequence of the increased development of the latter. In most of the Amphibia, and in all the Reptilia, the spinal cord passes down the whole length of the caudal vertebræ, as in the fishes, but to this the frog forms an exception. In that animal I found it descending no lower in its adult state than barely midway between the anterior and posterior extremities, and terminating by a few nervous filaments, which passed downwards towards the sacrum; in the young and tadpole state, however, I have found it prolonged into the coccygeal vertebræ, and terminating in a point. The form and structure of the spinal cord, and of the medulla oblongata, differ but little from what has been described in the fishes. In the Triton and frog, I found, as in them, a longitudinal fissure on its anterior and posterior a[illegible]nd a central canal communic[illegible] cavity of the fourth ve[illegible] was very large, covered o[illegible] plexus, was formed in the same manner, and bore a great resemblance to the fourth venticle described in the lamprey: in the lumbar region the spinal cord was thickened where the nerves of the extremities were given off; in the tadpole state, however, no such enlargement is visible. Amongst the true Reptilia, in the ringed snake, (coluber natrix) lizard, (lacerta viridis) and turtle, (testudo mydas) the spinal cord had an anterior and posterior longitudinal fissure, and a central canal communicating with the fourth ventricle, which in the ringed snake and lizard was small, but deep; in the turtle, large, but shallow, and partly covered in by the cerebellum. According to Bojanus*, the spinal cord in the Chelonia becomes enlarged where the nerves for the anterior and posterior extremities are given off, and very thin between those enlargements. Carus† has observed the same enlargements, but in a less degree, in a young crocodile.

Let us again turn to the consideration of the spinal cord in the human fœtus, where we find, according to Tiedemann, that up to the sixth month it contains a large central canal, similar to that just described in the reptiles. With regard to its extent and size, at the fourth, fifth, and sixth month, it gradually diminishes in relative size; it descends into the sacrum, and the middle and posterior enlargements are obvious.

Age of Fetus.	Breadth of the Spinal Marrow, on a level with the Medulla Oblongata.	Breadth of Brain.
Fourth month.	2½ lines.	8 lines.
Fifth —	2½ —	12 —
Sixth —	3 —	15 —

These points I have myself observed at the fourth and fifth months: it is not until the sixth month that there is any trace of a caudiform expansion, and at the seventh month it reaches no lower than the last lumbar vertebræ, and the nerves representing the cauda equina are rather large; from this time up to the ninth month it becomes gra-

* Anatome testudinis europeæ.
† Op. cit vol i. p. 78.

dually retracted and shortened, until it descends no lower than the third lumbar vertebra. From these short statements, it is impossible not to be struck with the analogy these changes represent in the Batrachian reptiles. As I have just observed, in the tadpole state of the frog the spinal cord is of equal diameter throughout, and passes down through the coccygeal vertebræ; but as it increases in development, and its metamorphosis takes place, the tail becoming absorbed, and extremities developed, a retraction of the spinal cord takes place precisely the same as in the human fœtus, and enlargements are evident for the origin of the brachial and crural nerves, as I have just described in the adult frog.

Resuming the general description of the nervous system in reptiles, the brain is composed of a suite of ganglia approaching very much in form and character to the fishes, especially the Rays and Sharks. In all the species I have examined, in the *triton*, (triton cristata) *frog*, (rana temporaria) *viper*, (coluber verus) *ringed snake*, (coluba natrix) *lizard*, (lacerta viridis) and *turtle*, (testudo mydas) it filled the cranial cavity destined to receive it, though that cavity was very small when compared with the whole head; thus the size of the head is no criterion for the size of the brain. Its weight, too, when compared with the body, is another proof of its small size. In a turtle weighing upwards of 50 pounds, I found the brain (with the olfactory nerves, and a very small portion of the spinal marrow), to weigh only 77 grains, the proportions being as 100 : 454,500; and, as I before observed, in a triton weighing 39 grains, the brain weighed only $\frac{1}{7}$ grain, the proportions being as 100 : 27,300.

On taking a general review of its structure, we find, as before, three principal parts to occupy our attention,—the olfactory tubercles, situated most anteriorly, the optic lobes, situated posteriorly to these, and the cerebellum.

1st. The olfactory tubercles, or primary cerebral mass, now become obviously the cerebral hemispheres, are of an increased proportional size, and contain a cavity which we first saw developed in the Plagiostome fishes; they are very various as to form. Amongst the Amphibia, in the triton I found them elongated and oblong; in the frog, more oval; they were united at their anterior parts by a commissure, but posteriorly they were separated. Amongst the true Reptilia, in the viper and ringed snake they were of a rounded form, and extended laterally; in the lizard and turtle they were oval; in the crocodile they are more extended laterally. On cutting into them, in the turtle I found an oblong tubercle analogous to the corpus striatum, on the inner side of which was a plexus choroides. From the anterior part of these hemispheres in the different animals mentioned, the olfactory nerves arose, and ran forwards to the cribriform plate of the ethmoid bone, on the upper surface of which, in the viper and lizard, they formed a bulbous enlargement: in the turtle this was wanting, but at their origin they formed a large round hollow swelling, situated immediately anterior to the cerebral hemispheres, and communicating with the cavities in their interior.

This description of the primary cerebral mass in the Reptilia will be about represented in the human species in a fœtus of four months. At this time, according to Tiedemann, the cerebral hemispheres, or primary cerebral mass, are commencing to cover the tubercular quadrigemina, and are smooth and unconvoluted on their surface: the pineal gland is now for the first time observable; the corpus striatum is of some size. I have just described the appearance of these parts in some of the Reptilia; the lateral ventricles are large, and the anterior cornu is continuous with the cavity in the olfactory nerves, as I described in the turtle. And also in the fœtal sheep, at the eighth week, I found the cerebral hemispheres smooth, ovoid, polished masses, covering only the upper portion of the tubercula quadrigemina; and in the embryo chick, on the sixteenth day, I found them presenting precisely similar characters as regards shape, size, and development backwards; the same also was observable in the fœtal hedge-hog, and in both the pineal gland was distinctly developed.

2d. The optic lobes, or median cerebral mass, are of small size, and are more solid than the same parts in the fishes, the internal cavity being smaller: we thus see them gradually approaching to the form and character of the tubercula quadrigemina of the mammalia, and of

man. In all the Reptilia I have dissected—in the triton, frog, viper, ringed snake, lizard, and turtle—they were of a rounded form, and situated on a plane immediately posterior to the cerebral hemispheres. In all these species I found also, immediately anterior to them, and partly covered by the cerebral hemispheres, a pair of small ganglia, analogous to the optic thalami of the human brain, on the superior surface of which was situated the pineal gland. These different eminences give origin to the fibres of the optic nerves.

With regard to the median cerebral mass, or tubercula quadrigemina, in the human fœtus, at the age before spoken of, (the fourth month) they are larger and more convex, hollow, and only now separated by a longitudinal fissure; also in the fœtal sheep at the eighth week, and fœtal hedgehog, I found them separated in a similar manner. Similar characters have been described in the reptiles.

3d. The posterior cerebral mass, or cerebellum, presents some interesting grades of development in these two classes of animals. In all of them it is small, in most of them extremely small, and covers in the fourth ventricle in a similar manner to what has been described in the fishes. In the triton and frog I found it to consist of a thin transverse band of medullary matter, precisely analogous to the cerebellum of the lamprey, and, in that animal, as leaving the fourth ventricle quite open and exposed: in the viper and lizard it presented a similar appearance, but the band of medullary matter was rather thicker; in the turtle it consisted of a tongue-shaped lobe, very similar to the cerebellum of the cod: there were very distinct lateral appendages, the rudiments of which we first observed in the Plagiostome fishes, and which we shall trace in the succeeding classes to increased degrees of development, these lateral appendages are found also in the crocodile; they lead us, by strict analogies, to the cerebellum of the birds.

The posterior cerebral mass, or cerebellum, in the human fetus at the fourth month, (according to Tiedemann) "is a mass formed by the union of the corpora restiformia, surrounding nearly in a semi-circle the posterior surface of the tubercula quadrigemina." No trace of grooves or hemispheres is perceptible. Also in the fœtal sheep at the fourth week, and in the early fœtal hedgehog, I found the cerebellum to consist of a transverse [illegible] matter, the anterior [illegible] was of a somewhat [illegible] and slightly hollowed out to [illegible] posterior surface of the tubercula quadrigemina; the upper surface was perfectly smooth and polished; there was not the slightest appearance of grooves, or division into hemispheres. In the Reptiles I have described similar appearances.

Aves.—We have now arrived at the class Aves, or birds, in which the nervous centre has acquired a high degree of development in all its parts, but particularly as regards the cerebellum, and the different portions composing the cerebral mass are arranged more above and less behind each other. I will notice, as before, the different parts of the spinal marrow, and the brain. The spinal cord is of less relative size, and of less extent, than in the fishes, and reptiles, but it still is traversed by an anterior and posterior longitudinal fissure, and still contains a central canal. In a pigeon weighing (according to Carus) eight ounces, (360 grains) the brain weighed 37 grains, and the spinal marrow only 11 grains, the proportion being as 100 : 30. We thus observe that the brain now preponderates in size over the spinal cord for the first time; this at once marks its increased development. Where the nerves supplying the anterior and posterior extremities are given off, the spinal cord presents distinct enlargements, the inferior of which is the largest, and is placed in the sacrum: this may be considered as the termination of the spinal cord, for Carus considers that portion passing through the coccygeal vertebra to be only a large terminal filament. A canal passes through the whole extent of the spinal cord, which, at the inferior enlargement, forms a large and remarkable excavation, called the rhomboidal sinus: this may be seen in the goose. The medulla oblongata, with the pyramidal and cerebellic fasciculi, present similar characters to the same parts in the fishes; the corpora olivaria, and pons varolii, are not yet developed.

Passing to the consideration of the spinal cord in the more developed human fœtus, we find that at the fifth month its relative volume is less than

in the earlier months, according to Tiedemann; at that time I could myself trace it no lower than the upper part of the sacrum, where it terminated by a slender filament: distinct enlargements at the origin of the brachial and crural nerves were observed: the corpora olivaria were developed, but not their eminences; these are wanting in birds.

The brain of birds is composed of a similar number of parts as in the reptiles, but they are more highly developed, and they are no longer arranged in a longitudinal series as formerly, but more on the top of each other. In all the species I have examined, in the sea-gull *(Larus cyanorhynchus)*, snipe *(Scolopax gallinula)*, red start *(Motacilla)*, goldfinch *(Fringilla carduelis)*, fowl *(Pharianus gallus)*, pigeon *(Columba)*, and hawk *(Falco nisus)*, the brain filled entirely the cranial cavity, this cavity now corresponding exactly with the size and form of the head. It is of increased relative size compared with the body: in a pigeon, weighing according to Carus 3360 grains, the brain weighed 37 grains; the proportions being as 100 : 9,100.

On taking a review of its structure, we find three principal portions, as heretofore, to occupy our attention, the conformation of each being very uniform in the whole class: 1st, the cerebral hemispheres; 2d, the optic lobes; 3d, the cerebellum.

1st, The primary cerebral mass, or cerebral hemispheres, are large, of greater relative size than any other parts of the brain, and vary but little in form; in the embryo chick on the 16th day, however, I found them very little larger than the optic lobes. In the sea-gull and snipe I found them of an oblong form, and larger posteriorly; in the hawk, more round and short; in the red start, goldfinch, pigeon, and embryo chick, on the 20th day, more lengthened in form, and covering quite the optic lobes. In the ostrich they are also lengthened, and approach very much the form and characters of the same parts in the lower mammalia. These hemispheres are united to each other by a commissure (the anterior commissure); above this there is another one, which Meckel considers as the first rudiment of the corpus callosum*: they contain cavities which are true lateral ventricles, and in which is a tubercle or enlargement corresponding to the corpus striatum of the mammalia. From the anterior part of this primary cerebral mass the olfactory nerves arise, and pass forwards to the cribriform plate of the ethmoid bone; their origin is marked by two distinct enlargements, which are hollow, and communicate with the lateral ventricle.

We have now arrived, in the scale of animated nature, to that point of organization of the cerebral mass which will be represented in the human fœtal brain at the fifth month. At that time, according to Tiedemann, the cerebral hemispheres, or primary cerebral mass, are smooth and free from convolutions, as I have myself observed in two fœtuses of that age; they have a more convex oval form, and are developed backwards so as to cover the superior surface of the tub. quad., leaving the posterior surface exposed, as I have just described in the birds. The anterior commissure exists, as also the corpus callosum; but this latter is very small and narrow, as I have myself observed. The corpus striatum is large. Similar parts, in a similar state of development, I have described in the birds.

2d, The optic lobes, or median cerebral mass, are of small size, and are more widely separated from each other than in the preceding classes, though they still are connected by a medullary membrane corresponding to the roof of the aqueduct of Sylvius. In the embryo of the chick on the 16th day, however, I found these parts, as I before observed, nearly as large as the cerebral hemispheres, their inner borders touching each other, as in the reptiles and fishes: at the 20th day they were widely separated. In all the species of birds I have dissected, in the sea-gull, snipe, hawk, red start, goldfinch, fowl, and pigeon, they were of a rounded form, and situated immediately beneath the cerebral hemispheres. On cutting into them in the sea-gull and pigeon, I found them to contain a cavity, which, in the former was very small, in the latter larger, and contained a solitary dark-coloured tubercle: in each their cavities communicated with the third ventricle. Between these optic lobes, and immediately inferior to the cerebral hemispheres, in the pigeon, there was situated a pair of ganglia, of a flattened form (the exist-

* Archiv. fuer die Physiologie.

ence of which has been before noticed in the preceding classes) analogous to the optic thalami of the brain of man: between them was the canal leading to the infundibulum.

With regard to the tub. quad., or median cerebral mass, in the human fœtus at the age before spoken of (the fifth month), we find they are smooth and more convex, still hollow, though the cavity is somewhat diminished, and presenting no traces of the four eminences which are subsequently to be developed. The optic lobes in birds, their analogues, have also been described as two smooth, convex, hollow masses, but in which the internal cavity was less than in the preceding classes. Their situation with regard to the cerebral hemispheres appears different from the human fœtus, but the quantity of surface uncovered by them certainly bears a great analogy of development.

3d, The cerebellum, or posterior cerebral mass, is particularly well developed, exhibiting an amazingly increased degree of organization when compared with the preceding classes, and bearing great analogy to the cerebellum of the higher animals. In all the species I have examined it consisted of a more or less rounded median lobe, with very small lateral appendages; its external surface was marked by transverse sulci, varying in number, that extended a short distance into the interior of its substance. On cutting into it in the sea-gull, fowl, and pigeon, the appearance of the arbor vitæ was slightly perceptible. In the embryo of the chick on the 16th day, however, the cerebellum was very small, not yet sufficiently developed to separate the optic lobes; very slight traces only of grooves were apparent on its surface. On the 20th day it presented all the characters of the full-grown bird, both as regards relative size, position, and external striæ.

In the human fœtus at the fifth month the cerebellum is much increased in size, and for the first time, according to Tiedemann, "presents evident traces of the division into a central part and two lateral hemispheres;" for the first time, also, "transverse grooves, four in number, are perceptible, dividing the organ into five lobes, which represent in a perpendicular section exactly five stems: the branches or leaflets do not yet exist, consequently the appearance of the arbor vitæ is but faint. I have myself seen the transverse furrows and lateral hemisphe[illegible] of this age. It is imp[illegible] statements witho[illegible] with the very great analog[illegible] cerebellum at the fifth month bears to the permanent form of the same part in the birds, both as regards size, increase of development, and correspondence of that development with that of the other parts of the brain.

On reviewing these statements of the nervous system in the birds, and in the human fœtus at the fifth month, we observe that the brain and spinal marrow are no longer situated on the same horizontal plane, and that the preponderance is now in favour of the brain: its weight, too, when compared with the body, is greater; and the ganglia composing it are more above, and less behind each other. The primary cerebral mass has now acquired so high a degree of development as to surpass the others in size; no convolutions are, however, yet apparent on its surface; no large commissure yet exists to unite them. The optic lobes, or median cerebral mass, are small, separated from each other, and their cavities have decreased. The cerebellum, or third cerebral mass, is large; traces of lateral lobes are evident, and external striæ are perceptible.

[To be continued.]

A QUARTZ PEBBLE IMPACTED DURING EIGHT WEEKS IN THE LARYNX.

To the Editor of the Medical Gazette.

Sir,

As there are but few reported cases of foreign bodies passing into the larynx, and as it may be desirable to keep the public attention alive to the occasional occurrence of such accidents, I beg to forward the inclosed case, which has recently fallen under my care, together with a drawing, for insertion in your valuable periodical.

I have the honour to be, sir,
Your humble servant,
Henry Bullock, M.R.C.S.

St. Thomas's Hospital,
Sept. 3, 1836.

May 21st, 1836 — Susan Williams, ætatis 6, was playing with pebbles in her mouth, when she was seized with a most violent convulsive cough, so that she became black in the face, and was nearly suffocated; the paroxysm continued half an hour, and then subsided. On recovering, she stated that she had swallowed a pebble, which had lodged in the throat. The throat was examined, and the œsophageal probang introduced, but without, however, discovering any extraneous body. The three or four following days the child merely complained of a sense of soreness in the throat, with nausea, which was accompanied by occasional slight paroxysms of cough, with a copious mucous expectoration; she was also hoarse, but had no pain or difficulty in deglutition. Aperients and an emetic were prescribed; she was not benefitted, and as she still persisted that the stone remained in the throat, was again (May 25th) very carefully examined, yet there did not appear to be any evidence of its existence either in the œsophagus or trachea. These circumstances, coupled with the fact that the child had not had hooping-cough, yet had for some time previously been in daily contact with children labouring under that disease, appeared to warrant the conclusion that no foreign body had passed either into the œsophagus or trachea, and that the cough was amongst the first symptoms of a severe form of pertussis. At the end of the fifth day she had marked symptoms of inflammation of the mucous membrane of the bronchia, namely, cough, generally occurring in paroxysms six or seven times a day, attended with a kind of hooping inspiration, and a copious expectoration of tenacious mucus; the hoarseness was likewise increased, while over the trachea and upper part of the chest; there was a loud mucous rattle, which was in some parts sonorous: the pulse was 100, and rather sharp, and there was slight heat of skin.

May 27th.—

Hirudines, vj. thoraci ; Antim. Tart. gr. ¼; Hyd. Subm. gr. i. 6ta. quaque horâ.

The following day she was very much relieved, having scarcely coughed since the application of the leeches.

June 2d.—Until this morning she has been doing well, but the cough has returned, with much uneasiness in the throat, and she still persists the stone remains there, yet she has no difficulty in deglutition, or pain when pressure is made upon the larynx or trachea; pulse 100. The leeches to be repeated, and the medicines continued.

3d.—Better in every respect; Empl. Canth. jugulo.

11th.—The child has been progressively improving since the last report, and is considered so far convalescent, that the medicines may be omitted.

20th.—Quite well, having regained her flesh and healthy appearance.

July 6th.—She was attacked with symptoms of pneumonia, which it is unnecessary to detail, and for which she was actively treated by bleeding, blistering, calomel, and emetic tartar, but without success, so that she died on the 18th of July, or eight weeks from the supposed accident; but from the 20th of June to the day of her death, there was no return of the convulsive cough, nor any uneasiness about the throat. On the day of her death, however, she again said she could still feel the stone, and in the same place as at first.

Examination nine hours after death.—On laying open the larynx and trachea, a quartz pebble was exposed to view, lying partly in the cricoid cartilage, and partly in the trachea, of the size of a large horse-bean, of an irregular figure and smooth surface: it was retained in its situation by a layer of apparently organized lymph, of very considerable thickness. On removing the stone, the mucous membrane under the effused lymph was in a state of ulceration, and the calibre of the tube was so nearly obstructed by the presence of the stone and lymph, as to render it difficult to pass an ordinary sized probe downwards; the whole of the mucous membrane of the trachea was thickened, and its vessels congested.

Chest.—In the cavity of the right pleura was upwards of a pint of turbid serum, containing flakes of lymph. An adventitious membrane was also formed upon the pleura pulmonalis of the lower lobe of the right lung, while nearly the whole of the substance of the right, and of the lower part of the left lung, were much diseased, and in the several con-

ditions of engorgement, hepatization, and of purulent infiltration; the vessels of the bronchial membrane were turgid, and the tubes loaded with a muco-purulent matter; the bronchial glands were also enlarged and black, and in various parts in a state of suppuration.

The preparation from which this sketch was taken, I have since presented to the Museum of St. Thomas's Hospital.

MEDICAL GAZETTE.

Saturday, September 17, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

WORKING OF THE MEDICAL WITNESS ACT.

It is important for medical men to be aware of the exact position in which they are placed by the new Medical Witness Act, in reference to their claim for remuneration in cases connected with Coroners' inquests. We should have thought the law plain enough, but the time which has elapsed since it came into operation, although very short, has yet been long enough to show that a difference of opinion may arise as to its interpretation.

A Coroner's inquest was held last week, before Mr. Stirling, on the body of a female who had been drowned in the New River. The medical witness, Mr. Robert Semple, of Islington, was called upon to see the deceased, whom he found at a Station-house. He applied a variety of remedies, and spent not less than two hours in endeavouring to resuscitate the body. On the case being ended, Mr. Semple addressed the Coroner, and inquired "if there were any impediment in the way of his receiving the fee which by a recent act of Parliament had been awarded to medical witnesses whose services had been given in cases where it was necessary to call a Coroner's inquest." The Coroner in reply said, "He did not intend to dispute Mr. Semple's claim under the new act, but he was not at present prepared to meet his wishes;" and he rather coolly added, that he "should be better in possession of the meaning of the act in question when the next inquest was summoned." Mr. Semple persisted in asserting his right to receive remuneration, but without avail. Mr. Bell, the Coroner's clerk, volunteered his services as expounder of the law, and stated that "it required a special order from the Coroner to entitle the surgeon to the fee, and that such order was only given where special services were given—such as post-mortem examinations."

All this appears very absurd. Here are three several parties bothering each other about what is really as clear as the sun at noon-day. Mr. Semple had no claim whatever to be remunerated under the new act; and this Mr. Stirling ought to have known, and been able to explain to him. It is unbecoming to find that, although an act of Parliament has been passed relating to the busi-

ness of the Coroner's court, which would not occupy five minutes in reading and fully understanding, yet that officer admits his ignorance, and assigns this as a reason for not complying with the applicant's demand. This may be law, but we are disposed to say, with the grave-digger in Hamlet, "it is Crowners'-'quest law." Neither is Mr. Bell right in his interpretation of the matter; it is not the fact that it requires "special services" to entitle the surgeon to the fee; for if the medical man has attended the inquest by order of the Coroner, that officer cannot keep his fee from him without himself infringing the law. On the point just mentioned the whole case turns. Hear the act:—"And be it further enacted, that when any legally qualified medical practitioner has attended any Coroner's inquest in obedience to such order as aforesaid of the Coroner, the said practitioner shall for such attendance at any inquest in Great Britain, be entitled to receive such remuneration or fee as is mentioned in the table hereunto annexed." But Mr. Semple had not attended "in obedience to any such order as aforesaid of the Coroner;" and it is evidently from his having been ignorant of this absolutely necessary condition, that he was led to make the demand which he did. Medical men have only to attend to this point to be enabled to avoid any mistake, and if they have been duly summoned, the Coroner (says the act) is "required and commanded to make his order for such remuneration or fee;" there being no discretion whatever left to him in the matter.

There seems as yet no indication on the part of the Coroners about London to give the medical profession the full benefit to which the act entitles them. Since the inquest to which we have above alluded was held, the report of another has met our eye. A girl, aged 16, was found drowned, and is supposed to have committed suicide. The Coroner inquired if the deceased had been examined by a medical man, and was answered in the negative. Now we contend that this question clearly implies that the Coroner was of opinion that such examination ought to have been made. Why, then, did he not immediately require the attendance of some "legally qualified medical practitioner?" But, said the Beadle, "surgeons object to interfere unless they are sure their fee will be paid." Now observe, this occurred under the same Coroner, and in the same neighbourhood, as in the case above alluded to, and several days after Mr. Stirling had professed that it was necessary for him to understand the act better before the next inquest was held. We recommend strongly to our brethren to persevere, and still to "object to interfere unless they are sure that their fee would be paid." The Coroners, for their own sakes, will soon be glad to put themselves "better in possession of the real meaning of the act."

In this second case there is another point which deserves notice. The Jury said "that the body ought to have been examined:" again we ask, why, then, was it not so? The Jury are in this respect independent of the Coroner, for if a majority of them are of opinion that the cause of death has not been sufficiently illustrated, they may require one or more medical men to be called; and this even in addition to any who may have been previously summoned by the Coroner himself, whose refusal to comply with the desire of the Jury, so expressed, amounts to a misdemeanor, and is punishable at law as such. The initiative in the business, it is true, rests with the Coroner, but the Jury, if they agree, or even if a majority of them concur, have the power to compel that officer to do his duty; while, with regard to the medical practitioner, he has the power at least of ne-

gative resistance: he may refuse to stir until he gets a proper summons, and then no Coroner would be such a blockhead as to expose himself to the consequence of refusing to give his order for the fee—viz. one guinea, if the medical man has merely attended the inquest; two guineas, if (being *ordered* by the Coroner to do so) he has made a post-mortem examination.

We have thrown together these few remarks for the guidance of our professional friends on this subject: the perusal of two inquests within a few days of each other in which such extraordinary ignorance of the provisions of the act was displayed, having naturally suggested them to us, and proved the necessity of some distinct explanation being put prominently before the public.

But although, under ordinary circumstances, the provisions of the act are thus apparent, yet cases are conceivable in which some difference of opinion might arise. Thus a medical man might be ordered to attend, and, having complied, might be required to make a post-mortem examination of the body, and analysis of the contents of the stomach. Now suppose he could not do this last—that he was not sufficiently acquainted with practical chemistry to undertake such analysis—is he then entitled to his fee, although he has not fulfilled the purpose for which his attendance was enjoined? If any questions have been put to him, probably there would be no hesitation in awarding him the minor fee; but we hold, that as the act stands, if he receives an order from the Coroner to be present, and attends accordingly, he has a positive claim to the remuneration of one guinea, whether the court choose to avail themselves of his evidence or not. If we are to be told that a medical man being unable to undertake the analysis required, shows a degree of ignorance which would warrant the disallowing of his claim to remuneration, we answer, that the act proposes no measure of the witness's information, farther than that he be a "legally qualified practitioner;" while, of such, we maintain that not one in fifty is capable of conducting the analysis of the contents of the stomach in such manner as to render his evidence good for any thing. Even where it is known that a particular poison has been used, it is often a very difficult and delicate process to demonstrate its existence; and this we are assured they will be the first to acknowledge who have *practically* attended to the subject. Such kind of chemical manipulation is quite foreign to the general pursuits of men engaged in practice, and ought only to be trusted to those who have devoted themselves to toxicological investigations.

This is the only part of the act which appears to us to be defective, for we do not think that things so very different as the autopsy and the chemical examination of the contents of the alimentary canal, ought to have been mixed up together. The fee is two guineas for the post-mortem examination, "with or without analysis;" but what a prodigious difference in the time, and trouble, and skill, does this "with or without" imply! We think that the analysis might well entitle him who made it to another guinea; it would be no more than a bare equivalent—if, indeed, it be an equivalent—for the service rendered.

A correspondent, to whom we alluded in our last number, suggests that the Coroner may have some difficulty in knowing whom to consider as "legally qualified practitioners." We presume that all who are members, or licentiates, of any of the medical corporations, are to be regarded as legally qualified; apothecaries who were in practice before 1812 also come under this description. Doctors in medicine are

likewise generally regarded as having a legal right to practise on the strength of their degree, except in London, or within seven miles thereof; in regard to which the Doctorate gives no privilege, unless the party be a Fellow or Licentiate of the College of Physicians; so that if any of our metropolitan coroners gave to a physician, not possessing this qualification, an order for a fee, he would transgress the limitations of the statute.

CHANGES IN THE MEDICAL SCHOOLS.

An unusual number of changes have taken place in the medical schools since last season. At King's College, we believe, the Chairs of Chemistry and Midwifery alone are filled by their original occupants. At St. Bartholomew's, also, great and important changes have been made: Dr. Latham, with whose original and very interesting Clinical Lectures the readers of this journal are familiar, takes the Practice of Physic, jointly with Dr. G. Burrows, also favourably known by his papers on the Blood. Half the chemistry, at the same establishment, is to be given by Professor Brande. At London University College, Dr. Quain is succeeded by Dr. Sharpey; and here we must say, *en passant*, that we think the conduct of the Lancet in endeavouring to write down this gentleman without a fair trial, is most unjustifiable, and in direct contravention of those principles of liberality and fair dealing by which it *professes* to be guided. We have heard most favourably of Dr. Sharpey, both as a man and a teacher.

At the Middlesex, Mr. Mayo, who, if an unlucky politician, is undoubtedly an accomplished physiologist, takes the Surgery.—Long as is this list of transpositions, we believe we have scarcely enumerated all that have occurred.

CHARTER OF THE UNIVERSITY OF LONDON.

We give below the charter of the new University, reserving our remarks upon it till a future opportunity:—

Copy of the Draught Charter of the London University.

William IV., by the grace of God of the United Kingdom of Great Britain and Ireland King, defender of the faith: to all to whom these presents shall come, greeting. Whereas we have deemed it to be the duty of our Royal office, for the advancement of religion and morality and the promotion of useful knowledge, to hold forth to all classes and denominations of our faithful subjects, without any distinction whatsoever, an encouragement for pursuing a regular and liberal course of education; and considering that many persons do prosecute or complete their studies, both in the metropolis and in other parts of our United Kingdom, to whom it is expedient that there should be offered such facilities, and on whom it is just that there should be conferred such distinctions and rewards, as may incline them to persevere in these their laudable pursuits. Now, know ye, that for the purpose of ascertaining, by means of examinations, the persons who have acquired proficiency in literature, science, and art, by the pursuit of such course of education, and of rewarding them by academical degrees, as evidence of their respective attainments, and marks of honour proportioned thereunto, we do, by virtue of our prerogative royal, and of our especial grace, certain knowledge, and mere motion, by these presents for us, our heirs and successors, will, grant, declare, and constitute

during our royal will and pleasure, and all the persons whom we may hereafter appoint to be Chancellor, Vice-Chancellor, or Fellows, as hereinafter mentioned, one body politic and corporate, by the name of the University of London, by which name such body politic shall have perpetual succession, and shall have a common seal, and shall by the same name sue and be sued, implead and be impleaded, and answer and be answered unto in every court of us, our heirs and successors. And we do hereby will and ordain that, by the same name, they and their successors shall be able and capable in law to take, purchase, and hold to them and their successors any goods, chattels, or personal property whatsoever, and shall also be able and capable in law, notwithstanding the statutes of mortmain, to take, purchase, and hold to them and their successors, not only all

such lands, buildings, hereditaments, and possessions, as may be from time to time exclusively used and occupied for the immediate purposes of the said University, but also any other lands, buildings, hereditaments, and possessions whatsoever, situate within our United Kingdom of Great Britain and Ireland, not exceeding the annual value of 10,000*l.*; such annual value to be calculated and ascertained at the period of taking, purchasing, or acquiring the same; and that they and their successors shall be able and capable in law to grant, demise, alien, or otherwise dispose of all or any of the property, real or personal, belonging to the said university, and also to do all other matters incidental or appertaining to a body corporate. And we do hereby further will and ordain, that the said body politic and corporate shall consist of one Chancellor, one Vice-Chancellor, and such number of fellows or members of the senate as we shall from time to time appoint under our sign manual; and that our trusty and well beloved the aforesaid be the first chancellor the first vice-chancellor, and the said be the first fellows and members of the senate thereof.

That whenever a vacancy shall occur in the office of chancellor of the said university, either by death, resignation, or otherwise, we will, under our sign manual, nominate a fit and proper person to be the chancellor instead of the chancellor occasioning such vacancy.

That the office of Vice-Chancellor of the said University shall be an annual office, and the Vice-Chancellor hereinbefore named shall, at the expiration of one year from go out of office, and the said Fellows or members of the senate shall, at a meeting to be holden by them for that purpose, on some day within a month before the expiration of the said office, of which due notice shall be given, elect one other fit and proper person to be the Vice-Chancellor of the said University, and so from time to time annually; or, in case of the death, resignation, or other avoidance of any such Vice-Chancellor before the expiration of his year of office, shall, at a meeting to be holden by them for that purpose as soon as conveniently may be, of which due notice shall be given, elect some other fit and proper person to be Vice-Chancellor for the remainder of the year, in which such death, resignation, or other avoidance shall happen; such person to be chosen from among themselves by the major part of the Fellows present at such meeting, and to be approved of by the Chancellor of the said University for the time being.

That we reserve to ourselves to be the visitor of the said University of London, with authority to do all those things which pertain to visitors as often as to us shall seem meet.

That the Chancellor, Vice-Chancellor, and Fellows for the time being, shall have the entire management of and superintendence over the affairs, concerns, and property of the said University; and in all cases unprovided for by this our charter, it shall be lawful for the Chancellor, Vice-Chancellor, and Fellows, to act in such manner as shall appear to them best calculated to promote the purposes intended by the said University, and the said Chancellor, Vice-Chancellor, and Fellows shall, have full power from time to time to make and also to alter any by-laws and regulations (so as the same be not repugnant to the laws of our realm, or to the general objects and provisions of this our charter) touching the examinations for degrees, and the granting of the same, and touching the mode and time of convening the meetings of the Chancellor, Vice-Chancellor, and Fellows, and in general touching all other matters whatsoever regarding the said University; and all such by-laws and regulations when reduced into writing, and after the common seal of the said University has been affixed thereto, shall be binding upon all persons members thereof, and all candidates for degrees to be conferred by the same, all such by-laws and regulations having been first submitted to one of our principal Secretaries of State, and approved of and countersigned by him.

That all questions which shall come before the Chancellor, Vice-Chancellor, and Fellows, shall be decided by the majority of the members present, and the chairman at any such meeting shall have a vote, and in case of an equality of votes, a second or casting vote.

That no question shall be decided at any meeting, unless the Chancellor, or Vice-Chancellor and five Fellows, or, in the absence of the Chancellor and Vice-Chancellor, unless six Fellows at the least shall be present at the time of such decision.

That at every meeting of the said Chancellor, Vice-Chancellor, and Fellows, the Chancellor, or in his absence the Vice-Chancellor, shall preside as chairman, or, in the absence of both, a chairman shall be chosen by the members present, or the major part.

That the said Chancellor, Vice-Chancellor, and Fellows for the time being, shall have full power from time to time to appoint, and, as they shall see occasion, to remove all necessary examiners, officers, and servants of the said university.

That once at least in every year the said Chancellor, Vice-Chancellor, and Fellows, shall cause to be held an examination of candidates for degrees, and on every such examination the candidates shall be examined either by examiners

appointed for the purpose from among the fellows by the said Chancellor, Vice-Chancellor, and Fellows, or by other examiners so to be appointed; and that on every such examination the candidates shall be examined in as many branches of general knowledge as the said Chancellor, Vice-Chancellor, and Fellows, shall consider the most fitting subjects of such examination.

And whereas it is expedient to extend the benefits of colleges and establishments already instituted, or which may be hereafter instituted, for the promotion of literature and science, whether incorporated or not incorporated, by connecting them for such purposes with the university created by this our royal charter. We do hereby further will and ordain that all persons shall be admitted as candidates for the respective degrees of Bachelor of Arts, Master of Arts, Bachelor of Laws, or Doctor of Laws, to be conferred by the said University of London, on presenting to the said Chancellor, Vice Chancellor, and Fellows, a certificate from any of the institutions herinafter mentioned, to the effect that such candidate has completed the course of instruction which the said Chancellor, Vice-Chancellor, and Fellows, by regulation in that behalf shall determine.

That such certificates as aforesaid may be granted from our college called London University College, or from our college called King's College, or from such other institution, corporate or unincorporated, as now is or hereafter shall be established for the purposes of education, whether in the metropolis or elsewhere within our United Kingdom, and as we, under our sign manual, shall hereafter authorize to issue such certificates.

And for the purpose of granting the degrees of Bachelor of Medicine, and Doctor of Medicine, and for the improvement of medical education in all its branches, as well in medicine as in surgery, midwifery, and pharmacy, we do further hereby will and ordain that the said Chancellor, Vice-Chancellor, and Fellows, shall from time to time report to one of our principal Secretaries of State what appear to them to be the medical institutions and schools, whether corporate or incorporated, in this our metropolis, or in other parts of our United Kingdom, from which, in the judgment of the said Chancellor, Vice-Chancellor, and Fellows, it may be fit and expedient to admit candidates for medical degrees, and on approval of such report by our said Secretary of State, shall admit all persons as candidates for the respective degrees of Bachelor of Medicine and Doctor of Medicine to be conferred by the said University, on presenting to the said Chancellor, Vice-Chancellor, and Fellows, a certificate from any such institution or school, to the effect that such candidate has completed the course of instruction which the said Chancellor, Vice-Chancellor, and Fellows, by regulation in that behalf shall determine; and it shall be lawful for the said Chancellor, Vice-Chancellor, and Fellows, from time to time, with the approval of one of our principal Secretaries of State, to vary, alter, and amend any such reports, by striking out any of the said institutions or schools included therein, or by adding others thereunto.

That the said Chancellor, Vice-Chancellor, and Fellows, shall have power to confer the several degrees of Bachelor of Arts, Master of Arts, Bachelor of Laws, Doctor of Laws, Bachelor of Medicine, Doctor of Medicine, and that such reasonable fees shall be charged for the degrees so conferred as the said Chancellor, Vice-Chancellor, and Fellows, with the approbation of the commissioners of our Treasury shall from time to time direct; and such fees shall be carried to one general fee-fund for the payment of the expenses of the said University, under the directions and regulations of the commissioners of our Treasury, to whom the accounts of income and expenditure of the said University shall once in every year be submitted, which accounts shall be subject to such examination and audit as the said commissioners may direct.

That at the conclusion of every examination of the candidates, the examiners shall declare the name of every candidate whom they shall have deemed to be entitled to any of the said degrees, and the departments of knowledge in which his proficiency shall have been evinced, and also his proficiency in relation to that of other candidates, and he shall receive from the said Chancellor a certificate, under the seal of the said University of London, and signed by the said Chancellor, in which the particulars so declared shall be stated.

Provided always, that all by-laws and regulations made from time to time touching the examinations of candidates and granting of degrees, shall be submitted for the consideration of one of our principal Secretaries of State, to be approved of by him.

And lastly, we do hereby for us, our heirs, and successors, grant and declare that these our letters patent, or the enrolment or exemplification thereof, shall be in and by all things valid and effectual in law, according to the true intent and meaning of the same, and shall be construed and adjudged in the most favourable and beneficial sense for the best advantage of the said University, as well as in all our courts as elsewhere, notwithstanding any non-recital, mis-recital, uncertainty, or imperfection, in these our letters patent. In witness, &c.

" SOFT AND EASY " METHOD OF TREATING FRACTURES.

To the Editor of the Medical Gazette.

Sir,

As the treatment of fractured bones is, undoubtedly, an important part of practical surgery, and as the best method of managing injuries of that description ought to be known to every practitioner, I take the liberty of forwarding, for publication in your valuable periodical, the following observations on *two new cases*, which were treated by the " soft and easy " method, and an account of them published by Dr. Inglis.

The doctor states, that he has heard from the surgeons who had the management of the above cases; and this is all he says respecting one of them. The other, a fracture of the femur, he tells us that he saw: the bone, in this case, according to the account in the Lancet, was broken at about the upper third. Cold lotions were applied. The limb was placed in an easy position in the pillows, and on the 14th day from the receipt of the injury, the patient " sat up, supporting his leg with his own hands, and had the bed properly made;"—that is to say, the bone, on the 14th day, was united, for it surely cannot be supposed that a patient could, in that manner, support with his hands, for any considerable length of time, a thigh which was merely surrounded by a soft pillow and a *loose* bandage, if the bone was in two pieces, without displacing the fractured ends. No such untoward circumstance, however, occurred, for we are told that, on the 20th day, the man " sat up for two or three hours, put the foot to the ground, and walked across the room with the assistance of a stilt;" (a crutch, I suppose) and that in one month from the time of the accident, though " well advanced in years," he walked six miles.

This certainly was quick work. I should like to know what Mr. Liston thinks of it. His experience must have led him to form a very different opinion respecting the length of time which is required for the restoration of broken bones, for, in one of his clinical lectures, he expresses his surprise that a patient, who was under his care in the North London Hospital, should have been able to walk about at the end of *five weeks*, after a fracture of the lower third of the femur, without deformity of the limb occurring. He tells his pupils that the man did do so, but that it was an experiment, and advises them not to permit patients with fracture to begin to use their limbs quite so soon, for if they do, he says, they may find " that a limb, apparently well cured and tolerably straight, may become, from the action of the muscles and the too early imposition of weight, as crooked as a ram's horn, and of an inconvenient brevity." Dr. Inglis, however, speaks in very different language. He evidently exults in the last case which he has published, and, after relating its history, adverts, by way of more fully illustrating the excellency of the downy pillow, to two of Mr. Radley's cases, which were treated by the " soft and easy" method.

The first of these cases was a very fortunate one, the fracture having united so rapidly, that, on the tenth day from the receipt of the injury, " the patient was able to be out for three or four hours." The second has a good deal of the wonderful about it. The patient, " a rough labourer from the granite mountains of Dartmoor," while working at the Highton quarries, was buried beneath a mass of moor-stone, which fell upon him and fractured one of his thighs. On the fifteenth day after the accident, he was seen, according to Mr. Radley's account, " with a sling under his foot and over his neck, pacing in front of his cot on a pair of crutches;" and Dr. Inglis, in the communication which he has transmitted, says that this same patient was found " walking up and down by a river's side fishing, on exactly that day *three weeks* from the time of the accident." His limb, it is true, was a little deformed. He turned out his foot awkwardly (at least so Mr. Radley says), but Dr. Inglis does not take any notice of that circumstance, it being, probably, in his eyes, a matter of little consequence; the soft and easy plan of treatment having been followed. But putting the deformity of the limb out of the question, it certainly does appear to be miraculous that the bone should, in the time mentioned, have been *in any way* so firmly united as to enable the man to perform such wonderful feats; and as miracles, in the present age, are contrary to our experience, the Doctor must excuse me when I say I consider it to be more probable that there must be some mistake respecting the real nature of all such marvellous cases, than that the days of miracles have again returned.

But it may perhaps be said that, in common cases of fracture, osseous union has always been effected by nature, in the space of ten, twelve, or fourteen days; that we have hitherto kept our patients too long from enjoying the use of their limbs; and that the observations which have been made by our most celebrated authors respecting the formation of callus, and the time which is requisite for the consolidation of fractures, are incorrect; and, as-

suredly, the cases referred to by Dr. Inglis would lead to such a belief. It therefore is incumbent upon that gentleman, if he wishes to make converts of his professional brethren, to explain to them the way in which nature really does, in ten or twelve days, unite fractures; to shew them if she fixes the ends of broken bones together, as a carpenter does pieces of wood, by means of something like glue; or in what other very expeditious manner she accomplishes their union. Until he has done this, and until he has also shewn the way in which the downy pillow and the cold lotion prevent the ends of fractured thigh-bones from being displaced by the contractile power of the muscles, a power which every practitioner of experience knows they generally, in such cases, exercise very freely, he may rest assured that but few well-informed surgeons will adopt the plan of treatment of which he has become the zealous supporter. I trust, however, that the Doctor will, ere long, favour us with something like an explanation of the above important points; and in the hope that he may be able to do so in a satisfactory manner, I remain, sir,

Your most obedient servant,

INVESTIGATOR.

London, Sept. 10, 1836.

MEDICAL CLUBS.

To the Editor of the Medical Gazette.

SIR,

I FEEL that I should not be doing my duty towards my professional brethren, if I withheld the following important information.—I am, sir,

Your obedient servant,

E CRISP.

Walworth, Sept. 14, 1836.

A meeting of medical men was held last evening at Camberwell, to take into consideration the propriety of forming a Medical Club, *which had been recommended by the Poor-law Commissioners.* The matter was fully discussed; and on the following motion being put, "That it is highly inexpedient to form a Medical Club in this neighbourhood," I am proud to say that more than thirty hands were held up in favour of the motion, and only three against it; but the dissentients, *to their praise be it spoken!* rather than act in opposition to so great a majority of their professional brethren, agreed to have nothing to do with the Club.

I will furnish you with the names of the gentlemen who attended the meeting at the earliest opportunity.

LITERARY INTELLIGENCE.

The Report of Sir David Barry and Dr. Corrie, on the Medical Charities of Ireland, will shortly be published. These gentlemen were appointed, by Government, Commissioners for investigating the Management of Hospitals and Asylums.

A Manual of Bedside Physical Diagnosis. By Charles Cowan, M.D. *In the press.*

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

September 8, 1836.

John Lawrence, Brighton.
William Hutton Rowe, Newbottle, Durham.
James Hunter, Islington.
James Surrage.

September 15.

William Richardson, Stockton-upon-Tees.
Gay Shute, Gosport.
Henry Hylton Taylor, Seaton Sluice, Northumberland.
George Daniel, Manchester.

WEEKLY ACCOUNT OF BURIALS,

From BILLS OF MORTALITY, *Sept.* 13, 1836.

Abscess	1	Hernia	1
Age and Debility	40	Hooping Cough	6
Apoplexy	7	Inflammation	15
Asthma	11	Bowels & Stomach	4
Cancer	2	Brain	2
Childbirth	6	Lungs and Pleura	6
Consumption	49	Insanity	1
Convulsions	29	Jaundice	1
Croup	4	Liver, diseased	7
Dentition or Teething	8	Measles	8
Diarrhœa	2	Mortification	1
Dropsy	11	Rheumatism	1
Dropsy on the Brain	7	Small-pox	3
Epilepsy	1	Tumor	1
Erysipelas	1	Unknown Causes	15
Fever, Scarlet	5		
Gout	2	Casualties	4
Heart, diseased	1		

Decrease of Burials, as compared with the preceding week . . 89

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

Sept. 1836.	THERMOMETER.		BAROMETER.	
Thursday . 8	from 48	to 60	29·70	to 29·65
Friday . . 9	47	57	29·66	29·79
Saturday . 10	39	56	29·72	29·83
Sunday . . 11	40	57	29·86	29·88
Monday . . 12	47	59	29·90	29·93
Tuesday . . 13	50	57	29·98	30·01
Wednesday 14	46	59	30·03	30·05

Prevailing winds, W. by N. and N. by E.

Except the afternoons of the 12th and 14th, generally cloudy, with frequent rain.

Rain fallen, ·5275 of an inch.

CHARLES HENRY ADAMS.

NOTICE.

MR. LLOYD'S paper has been received, and shall appear in an early number.

WILSON & SON, Printers, 57, Skinner-St. London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

SATURDAY, SEPTEMBER 24, 1836.

LECTURES

ON

MATERIA MEDICA, OR PHARMACOLOGY, AND GENERAL THERAPEUTICS,

Delivered at the Aldersgate School of Medicine,

BY JON. PEREIRA, ESQ., F.L.S.

LECTURE LII.

IN this lecture I have to examine those pharmaceutical agents which are obtained by the decomposition of vegetable matter: I shall commence with alcohol.

1. *Alcohol.*

History.—Fermented liquors were known in the most remote ages of antiquity. The sacred writings tell us that Noah (who is supposed to have lived 2200 years before Christ) planted a vineyard, drank wine, and was drunken. It is uncertain, however, at what period vinous liquors were submitted to distillation. That the Greeks and the Romans were unacquainted with ardent spirit seems evident, from the circumstance that no allusion to it is found in any of their writings. Albucasis and Raymond Lully are the first persons who mention it. The latter, who died A.D. 1315, distinguished spirit of wine by the name of *aqua vitæ ardens.* The term *alcohol* is of Arabic origin.

Production.—The production of alcohol may be divided into three stages: the preparation of a fermented vinous liquor, the production from this of an ardent spirit by distillation, and, lastly, rectification or purification of the spirit.

1. *Production of a vinous liquor.*—When vegetable substances are placed in contact with air and moisture, they undergo that kind of decomposition which is denominated *fermentation.* The products of this process vary at different periods or stages; and on this depends the distinction into kinds or varieties of fermentation. Thus starchy liquids, under some circumstances, become saccharine; the process being termed the *saccharine* fermentation. Sugar dissolved in water, and mixed with glutinous matter, is converted into carbonic acid and alcohol; and to this process the name of *vinous* fermentation is applied. Vinous liquids are capable of generating acetic acid, and the process is denominated *acetous* fermentation. Lastly, most vegetable substances are slowly converted into gases and a substance called vegetable mould (*humus*), constituting the process called the putrefactive fermentation.

To produce a vinous liquid it is necessary that there be present sugar (or some substance capable of forming sugar, as starch), a certain quantity of water, and a ferment (usually yeast). Moreover a certain temperature is necessary. The precise functions which each of these essentials performs are not known. As Berzelius has remarked, the changes may depend on the development of forces of no common nature. The products of this process are carbonic acid, alcohol, and yeast. To account for the two first of these we take the data furnished us by Thenard.

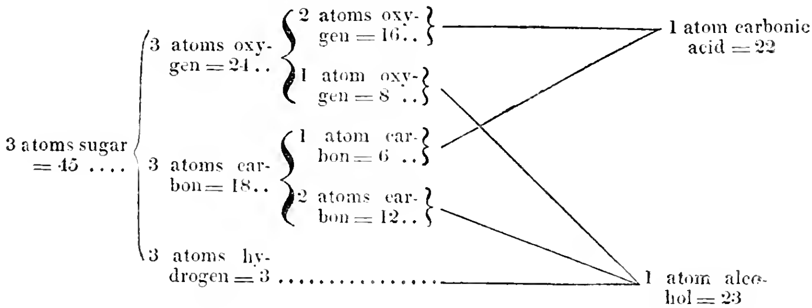
Substances fermented at 59°.

Sugar	300
Yeast	60
	360

Products of fermentation.

Alcohol of 0·822	171·5
Carbonic acid	94·6
Nauseous residue	12·0
Residual yeast	40·0
	318·1
Loss	41·9
	360·0

Now the nauseous residue and residual yeast nearly make up the quantity of yeast employed; and supposing the loss to be proportionally divided between the alcohol and the acid, it follows that by the vinous fermentation sugar is resolved into carbonic acid and alcohol. The nature of this decomposition will be understood by reference to the following diagram:—



The liquid obtained by the vinous fermentation has received different names, according to the substance from which it is obtained. When procured from the expressed juices of fruits, as grapes, currants, gooseberries, &c., it is denominated *wine*, (*vinum*): from an infusion of malt and hops, *ale* or *beer*, (*cerevisia*); and from honey and water, *mead*, (*hydromeli*). Fermented infusions prepared by the distillers of this country for the production of ardent spirit, are technically denominated *washes*: these are usually made from an infusion of unmalted grain.

The liquid obtained by the vinous fermentation consists of water, alcohol, colouring and extractive matters, volatile oil, and various acids and salts. The following is a tabular view of the average quantities of alcohol in different vinous liquids.

100 parts (by measure) of	alcohol (by measure).
Port wine contain	22·96
Madeira	22·27
Sherry	19·17
Claret	15·10
Hock	12·08
Champagne	12·61
Cider	7·54
Mead	7·32
Ale (Burton)	8·88
London porter	4·20
London small beer	1·28

2. *Production of ardent spirit.*—By the distillation of vinous liquids, ardent spirits are obtained. When wine is employed, the spirit is termed *brandy*: when the vinous liquid is fermented molasses, the spirit is called *rum*; and from fermented infusions of malt are obtained the spirits called *gin*, *hollands*, or *geneva*, and *whisky*. The spirit called *arrack* is procured either from toddy (palm wine), or from fermented infusions of rice. The spirit obtained from the fermented infusion of grain (*wash*), before alluded to, is termed *corn spirit*. Sometimes a fermented liquid is obtained from potatoes and water, and the spirit procured therefrom is called *potato spirit*.

Ardent spirit consists of water, alcohol, volatile oil, and frequently colouring matter. The following are the average quantities of alcohol in some of them.

100 parts (by measure) of	alcohol (by measure).
Brandy contain	53·39
Rum	53·68
Gin	51·60
Whisky (Scotch)	54·32
Whisky (Irish)	53·90

Our distillers denominate the first distilled product of the washes before mentioned, *singlings*; and by a re-distillation these are said to be *doubled*. The product of this second distillation is called *raw corn spirit*; its strength is *eleven per cent. over proof*. The strength of *proof spirit* is fixed by act of parliament: it is such, that at 51° F. thirteen volumes of the spirit weigh exactly as much as twelve volumes of water at the same temperature. According to this definition, its specific gravity will be 0·920 at 60° F, and consists of—

	By weight.
Alcohol (sp. gr. 0·791)	49
Water	51
Proof spirit	100

The rectified spirit sold by distillers should be at least 54 per cent. over proof.

3. *Rectification.*—To deprive ardent spirits of its oil and water is the object of the process of rectification. This is effected by repeated distillations, and by the use of the carbonate of potash. By a peculiar

process, known only to Messrs. Bowerbank, rectifiers, of London, this oil (which has been termed *oil of grain*) is procured from corn spirit, in an isolated form. I am indebted to Mr. J. S. Bowerbank for the following account of it:—

"The sample of oil of grain sent is separated during the rectification of the spirit, by a peculiar process known only to our own house; it exists in the spirit in about the proportions of one gallon to five hundred. The usual method of attempting its removal is by the addition of a considerable quantity of potash, but which only partially effects the object, much, after the most careful rectification, always remaining in the spirit,—which may afterwards be readily separated by our process. This separation of the oil renders the spirit much more free from either flavour or odour, and better adapted to all the finer purposes of medicine and the arts. I need scarcely tell you, having sent you a sample, how dreadfully acrid and fœtid it is, a few drops sufficing to contaminate a whole gallon of spirit. When the vapour of it is inhaled, it strongly irritates the lungs, and occasions violent coughing and a copious flow of tears. We have hitherto always consumed it as a lamp oil, and it burns with a strong clear light, much like that of gas, and is the best blow-pipe oil I have ever used, but will not do for working retorts, as it has broken them in every case in which I have used it for that purpose."

In the Pharmacopœia, alcohol is obtained by adding hot sub-carbonate of potash to rectified spirit, and distilling. The subcarbonate, from its strong affinity for water, unites with it, and checks its rising with the spirit during the distillation.

Properties.—Alcohol is a limpid colourless liquid, having a peculiar penetrating odour, and burning taste. It is very volatile, and when its sp. gr. is 0·820, it boils at 176° F. It is very combustible, burning in the air with a yellowish flame, and the production of water and carbonic acid. It unites with water in every proportion, but the two liquids by their combination diminish in volume. With certain salts, the chlorides for example, it forms definite crystalline compounds, which have been termed *alcoates*. It dissolves sugar, the volatile oils, resins, and balsams. The specific gravity of absolutely pure alcohol is somewhat uncertain. Lowitz says he obtained it of specific gravity 0·791, at 68° F. In the Pharmacopœia, the specific gravity is fixed at 0·815. The proper mode of estimating the strength of spirit is by taking its specific gravity, which is readily effected by a hydrometer. Approximations may be obtained by other methods, as by the *beading*: the larger the bubbles formed when a spirit is shaken in a bottle, and the more instantaneously they disappear, the purer the spirit.

Composition.—Alcohol is composed of—

2 atoms carbon, (6×2)	12
1 atom oxygen	8
3 atoms hydrogen	3
1 atom alcohol	23

But several reasons have induced chemists to view alcohol as a double binary compound of water and a base (probably olefiant gas), consisting of carbon and hydrogen. According to this view, alcohol is composed of—

1 atom olefiant gas	14
1 atom water	9
1 atom alcohol	23

Or by doubling the numbers we may regard it as a bihydrate of a suppositious substance called ætherine (composed of 4 atoms carbon and 4 atoms hydrogen):—

1 atom ætherine	28
2 atoms water	18
1 atom alcohol (bihydrate ætherine)	46

Characteristics.—The characteristic tests for alcohol are its odour, its taste, its volatility, and its inflammability. The two first, however, may be much modified by the presence of other substances, as camphor; and it must not be forgotten that several other liquids are volatile and combustible.

Physiological effects. (*a.*) *On vegetables.*—Alcohol acts on vegetables as a powerful and rapid poison.

(*b.*) *On animals.*—The effects of alcohol have been tried on dogs, cats, horses, rabbits, guinea pigs, sparrows, and frogs. Orfila concludes that its action on the three first of these animals is similar to that on man. Monro states, that applied to the hind legs of a frog, alcohol rendered the pulsations of the heart slower, and diminished the sensibility and mobility.

(*c.*) *On man.*—The effects of alcoholic liquors on man vary with the strength of the liquid, the substances with which the alcohol is combined, the quantity taken, and the constitution of the patient. The *local effects* of alcohol are those of a powerful irritant,—pain, heat, redness, and inflammation being produced. These effects depend, probably, either partially or wholly, on its chemical influence; for its affinity for water causes it to abstract this liquid from soft living parts with which it is placed in contact, and, when these are of an albuminous nature, it produces coagulation. Thus when alcohol is in-

jected into the veins it causes speedy death, by coagulating the blood. The local irritation which this liquid sets up in the tissues perhaps depends on the resistance which the living part makes to the chemical influence of the poison. When injected into the cellular tissue it is absorbed, and soon causes death; but the blood around the part operated on is found coagulated. When swallowed, we may regard the local action as two-fold: local irritation, and coagulation of the blood. The *remote effects* of alcohol require to be noticed under three heads, according to the degree of effect.

First degree or stage of excitement.—This is characterised by excitement of the vascular and nervous systems: the pulse is increased in frequency, the face flushed, the eyes are animated and perhaps red, the intellectual functions are powerfully excited, the individual is more disposed to joy and pleasure; cares disappear; the ideas flow more easily and are more brilliant. At this period the most violent protestations of love and friendship are frequently made, there is a strong disposition to talk,and various indiscretions are oftentimes committed. This I presume to be the condition to which all persons aspire in drinking: the unfortunate drinks to drown his cares; the coward to give him courage; the bon-vivant for the sake of enjoying the society of his friends; the drunkard from mere sensuality. None, perhaps, would wish to go beyond this, yet many, when they have got thus far, exceed their intended limit. In our police reports we often read that persons in this stage of excitement are described as being *fresh*, but neither tipsy nor drunk.

2. *Second degree: intoxication.* — The essential characters of this stage are, a disordered condition of the intellectual functions, and of volition, manifested by a kind of delirium, varying in different individuals,—an incapability of governing the action of the voluntary muscles, and a disposition to sleep,sometimes terminating in coma or actual apoplexy. The lower classes use certain terms to designate the different stages of this degree: thus an individual is described as being *half and half* when the disordered intellect is just commencing; when beginning to be unsteady in his gait, he is described as being *tipsy*; when he reels and falls about, is incapable of standing, but is yet sensible, he is said to be *drunk*: and, lastly, when he is insensible, or nearly so, he is *dead drunk*.

3. *Third degree: apoplexy.*—This degree is observed when excessive quantities of spirit have been swallowed, as for wagers. The symptoms are usually those of pure coma or apoplexy, though occasionally convulsions are observed.

Consequences of habitual drunkenness. — After the already-described immediate effects of a drunken fit have subsided, there generally remains more or less disorder of the digestive organs, and of the brain; thus we frequently observe sickness, headache, furred tongue, and an indisposition or incapability for much exertion, whether mental or bodily.

By the continued use of spirituous liquids, diseases of the digestive or nervous systems are frequently produced. Thus, chronic inflammation of the stomach, hepatic disease, delirium tremens, phrenitis, and apoplexy, are some of the common effects of habitual drunkenness.

Physiological effects of vinous liquids.—The effects of wine are similar to those of alcohol, though they are not proportionate to the quantity of the latter contained in wine. This will be best proved by reference to the foregoing tables of the proportion of alcohol contained in various vinous liquids. From these it appears that—

$3\frac{1}{2}$ fluid ounces of alcohol are contained in about .... $\begin{cases} \frac{1}{2} \text{ pint brandy.} \\ 1 \text{ pint port wine.} \\ 1\frac{1}{2} \text{ pint claret.} \\ 2 \text{ pints champagne, or} \\ 5\frac{1}{2} \text{ pints London porter.} \end{cases}$

Now most persons find champagne a more intoxicating drink than claret or even port; yet if its intoxicating power depended on the contained alcohol, it would be only half as strong as the latter. This leads us, therefore, to suspect that the other constituents of wine exert a modifying power, either increasing or diminishing the effect of the alcohol. The known narcotic operation of carbonic acid, when inhaled, and the circumstance that even a common effervescing draught has sometimes caused mental excitement, concur in pointing out carbonic acid as the agent which contributes to the intoxicating power of champagne. Moreover, it is not unlikely that the tartar (supertartrate of potash) contained in port wine may be in some state of combination with the alcohol, so that the intoxicating effect of the resulting compound may be less than that of the alcohol in the free state. This is not improbable, since it is believed the vegetable acids do diminish the operation of narcotics, and doubtless the super salts of these acids possess similar properties. If this be admitted, we have, then, an explanation of a state-

ment made by connoisseurs in wine, namely, that a brandied wine (that is, a wine to which brandy has been added) is more intoxicating than a wine containing the same quantity of spirit, but which has not been brandied: because the spirit which is added does not enter into intimate combination with the other principles.

Modus operandi.—I have already endeavoured to explain the local operation of alcohol, and shall now inquire into its remote action. That alcohol becomes absorbed is proved by the fact that it has been detected in the blood: thus Tiedemann and Gmelin recognised it by its odour in the blood of the splenic vein, though they were unable to detect it in the chyle. Moreover, alcoholic liquors have been recognised by their odour in various parts of the body, particularly in the brain. Thus Sir Anthony Carlisle says he found a liquid having the taste and smell of gin, in the ventricles of the brain. Although this statement is so improbable that we might suspect some fallacy, yet it is confirmed by the evidence of other published cases.

Morbid appearances.—The post-mortem appearances in a case of poisoning by alcoholic liquors are not constant. Sometimes they are those indicating inflammation of the stomach. Congestion of the cerebral vessels, or extravasation of blood, or effusion of serum, is not unfrequently observed in the brain.

Use.—Pure *alcohol* is used for chemical and pharmaceutical purposes only, and is never employed as a medicinal agent.

Rectified spirit of wine has been used in various cases, of which the following are a few examples:—

1. As a styptic: to restrain hæmorrhage, spirit is useful in two ways; it coagulates the blood by its chemical action on the albumen and fibrine, and it causes contraction of the mouths of the bleeding vessels.

2. To harden the cuticle over tender and delicate parts. The efficacy of spirit for this purpose depends on its chemical influence.

3. As an application to burned or scalded parts. Warm rectified spirit has been used in these cases on account of its stimulant properties. Oil of turpentine, however, is commonly employed as a substitute for spirit, even by those who treat burns on the principles laid down by Dr. Kentish.

4. As an embrocation. Frictions, with rectified spirits, have been used for various purposes: thus, in the abdominal region, they are employed to promote labour pains; over the chest, to excite the action of the heart, in fainting, or suspended animation; in the hypogastric region, to stimulate the bladder when retention of urine depends on inertia, or a paralytic condition of this viscus; in various parts of the body, to relieve the pain arising from bruises; and, as a stimulant to paralyzed parts.

5. Inhaled in the form of vapour. The vapour of rectified spirit has been recommended to relieve the irritation produced by the inhalation of chlorine; but I have tried the practice on myself without benefit.

Dilute spirit is employed medicinally for several purposes:—

1. As an injection for the radical cure of hydrocele. A mixture of wine and water, however, is commonly employed in this country.

2. As a cold lotion. The efficacy, of course, depends on the evaporation, and, therefore, the liquid should be applied by means of a single layer of linen, and not by a compress. It would be tedious to enumerate all the cases in which cold lotions are useful; I may, however, remark, that in head-ache I prefer the use of Eau de Cologne to the common spirit lotions. It should be applied by means of a single layer of linen; and to assist the evaporation, and thereby to increase the cold, the part should be blown on.

3. As a stimulant wash. In various chronic skin diseases, in the ulcers of bed-ridden persons, in the chronic forms of ophthalmia, and in various other cases, spirit washes act as most useful stimulants.

For internal exhibition, we seldom use spirit of wine merely, but generally employ, as a more pleasant mode of exhibition, either brandy or wine. These liquids agree in their stimulant and intoxicating properties, yet their action is not precisely alike. The stimulant effects of brandy take place more quickly than those of wine,—and hence it is adapted to those cases where we wish to produce an immediate effect. Wine, on the other hand, operating more slowly, produces more permanent effects, and hence partakes more of the tonic character.

We employ these liquids in the following cases:—

1. As a stomachic stimulant. Thus we employ brandy to relieve spasmodic pains, to check vomiting, especially sea-sickness, and to give temporary relief in some cases of indigestion attended with pain after taking food.

2. To check diarrhœa. I have frequently employed warm brandy and water with nutmeg in mild cases of diarrhœa, and with great success. Of the wines, port is best adapted for patients affected with a relaxed condition of bowels, on ac-

count of the astringent matter which it contains. The acid wines, hock and claret, are of course objectionable.

3. To prevent or relieve syncope. During a tedious operation, spirit and water or wine and water is administered as a powerful stimulant to support the vital powers. It is also useful in assisting to restore patients from a state of syncope or suspended animation.

4. In the latter stages of fever. Wine was formerly given copiously in fever, to counteract the supposed symptoms of debility; but of late years practitioners have viewed these symptoms rather as indicative of increased vascular action within the cranium, than as arising from mere debility; and wine, therefore, is much less frequently employed than formerly.

5. In delirium tremens and tetanus. Notwithstanding that delirium tremens is brought on by the use of intoxicating drinks, it is not always advisable to leave off their employment at once, since the sudden withdrawal of the long-accustomed stimulus may be attended with fatal consequences. In tetanus, the use of large quantities of wine has been thought by some to be beneficial.

6. In poisoning by digitalis. Brandy and ammonia are the antidotes to be relied on in a case of poisoning by this substance

7. To promote strength. Wine is resorted to as a tonic or strengthening remedy in various chronic diseases unaccompanied with fever.

8. To produce weakness of the muscular system. In order to diminish the muscular power, and thereby to assist the reduction of dislocations, it has been proposed to induce intoxication by the use of spirit.

For medical purposes the different wines are not equally serviceable. Thus when there is dyspepsia or acidity of stomach, or when there is a disposition to the deposition of lithic acid in the urine, sherry is the best wine, since it is the least acid. Madeira contains more alcohol and is more stimulating, and is consequently better adapted for old persons and debilitated constitutions, except under the circumstances before mentioned, when its acidity makes it objectionable. Claret and hock are light acid wines, and act as aperients and diuretics: they are adapted to those cases in which the phosphates are deposited in the urine. Port wine contains a quantity of tannic acid, and is in consequence more tonic and astringent. Hence it is adapted to cases of debility, particularly when attended with a relaxed condition of the bowels.

2. *Sulphuric Æther.*

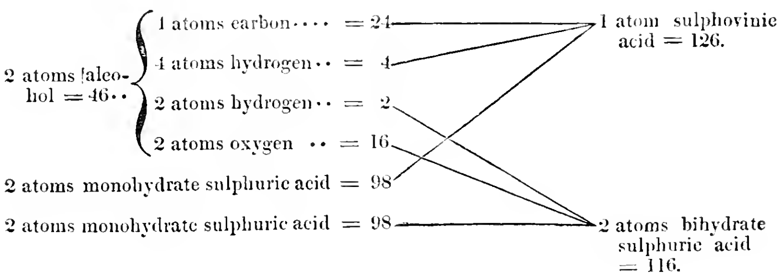
History.—Modern philosophers employ the word æther in a two-fold sense: first, to designate a fluid eminently subtile and elastic, which pervades all matter, and on whose motions the phenomena of light and heat depend; secondly, to designate various liquids obtained by the action of different acids on alcohol. Sulphuric æther, that is, æther procured by the action of sulphuric acid on alcohol, is commonly termed merely *æther*. It was first described by Valerius Cordus in 1540.

Preparation. — In the Pharmacopœia, this is ordered to be prepared by distilling equal weights of rectified spirit and strong sulphuric acid.

When a heavier fluid begins to pass over, and is observed under the æther in the receiver, more alcohol is to be added to the liquor which remains in the retort, and the æther is to be again distilled.

The æther thus procured usually contains alcohol, water, and sulphurous acid. To separate these, a solution of fused potash is added to the æther, and the mixture distilled. The product is termed *rectified æther*.

Theory of the process.—When concentrated, sulphuric acid is mixed with alcohol, or rectified spirit; one portion of the acid abstracts the elements of water from the alcohol, while another portion combines with the remaining constituents of the alcohol to form sulphovinic acid. The following diagram illustrates these changes.



By the agency of heat the sulphovinic acid is decomposed into sulphuric acid and a compound of carbon and hydrogen (termed by some ætherine, by others tetarto-carbo-hydrogen): the latter unites with an atom of water, and forms æther, while the sulphuric acid, acting on a new quantity of alcohol, furnishes more sulphovinic acid, which is also decomposed in its turn by the heat.

Properties.—It is a colourless very limpid liquid, having a penetrating, peculiar, though somewhat fragrant odour, a hot pungent taste, and a high refractive power. It has neither acid nor alkaline properties, and is a bad conductor of electricity. It is one of the most volatile liquids known, and by its evaporation produces intense cold. Æther of specific gravity 0·720, boils at 96° or 98°, and under the exhausted receiver of the air-pump enters into rapid ebullition: indeed, it is said to boil at —46° in a vacuum. It is very combustible, burning in atmospheric air with a yellow flame, and generating water and carbonic acid. Its vapour, mixed with oxygen gas, forms a violently explosive mixture. When exposed to light and air, æther absorbs oxygen, and is gradually converted into acetic acid and water; and by the action of the acetic acid on some undecomposed æther, acetic æther is formed. It is sparingly soluble in water, but dissolves in all proportions in alcohol. It removes chloride of gold, chloride of iron, or corrosive sublimate, from aqueous solutions of these salts. It dissolves the volatile oils and most of the fatty and resinous substances. According to Lowitz, the sp. gr. of absolute æther is 0·632 at 60° F. As met with in the shops, it is mixed with variable quantities of alcohol, and its sp. gr. is often as high as 0·750.

Composition.—Sulphuric æther consists of—

4 atoms carbon, 4 × 6	24
1 atom oxygen	8
5 atoms hydrogen	5
1 atom æther	37

But several reasons (not necessary to be mentioned here) lead us to suspect that these elements are so arranged as to form two binary compounds. Thus the oxygen is supposed to exist in combination with an atom of hydrogen, forming an atom of water; while the carbon with the remaining hydrogen constitutes a compound equivalent to two atoms of olefiant gas, and which has been variously denominated ætherine, tetarto-carbo-hydrogen, bicarbonated hydrogen, &c. On this plausible theory æther consists of—

1 atom water	9
1 atom ætherine	28
1 atom æther (hydrate of ætherine)	37

Physiological effects. (*a.*) *On vegetables* sulphuric æther acts as a rapid and powerful poison.

(*b.*) *On animals generally.*—The effects of æther have been tried on dogs and birds (namely, cranes, pigeons, and ducks). It acts on them as a poison. Orfila states, that when introduced into the stomach of a dog it produced attempts to vomit, diminished muscular power, and afterwards insensibility. Injected into the cellular tissue it also occasioned death.

(*c.*) *On man.*—When the vapour of sulphuric æther, mixed with atmospheric air, is inhaled, its effects are said to be precisely similar to those of the protoxide of nitrogen; and those persons peculiarly susceptible of the action of the one, are also powerfully affected by the other. When the air is too strongly impregnated with æther, it is liable to produce insensibility. When swallowed, the effects which æther gives rise to are analogous to those of alcohol; that is, it excites the arterial system, produces intoxication, and, in large doses, causes insensibility. It differs from alcohol in being more speedy and less permanent in its operation. By continued and habitual use it loses its power over the system, and hence it becomes necessary gradually to increase the dose. Dr. Christison mentions the case of an old gentleman who consumed sixteen ounces every eight or ten days, and had been in the habit of doing so for many years; yet, with the exception of the asthma, for which he took the æther, he enjoyed tolerable health.

Uses.—The following are some of the cases in which æther is employed medicinally:—

1. As a stimulant in the latter stages of typhus.

2. In spasm and convulsions. Thus in spasmodic asthma it is a very common remedy: it generally gives temporary relief, but has no tendency to prevent the recurrence of the paroxysms. In hysteria, also, it is sometimes serviceable. In cramp of the stomach, in singultus, in the spasm produced by the passage of biliary and urinary calculi, and in many other spasmodic cases, it is used with occasional benefit.

3. As a powerful diffusible stimulant it has been used in malignant cholera, but with variable success.

4. The vapour of æther is sometimes

inhaled in spasmodic asthma, in chronic catarrh, and to relieve the irritation produced by the inhalation of chlorine. One mode of using it is to hold a lump of sugar in the mouth, on which a few drops of æther have been dropped.

5. In flatulency of stomach, and against sea-sickness, it is sometimes used advantageously.

The dose of æther is from half a fluid drachm to two drachms.

Spiritus ætheris sulphurici.—This is prepared by one part of æther with two parts of rectified spirit. The dose is from one to three drachms.

Spiritus æther sulphurici compositus.—This differs from the last preparation only in containing æthereal oil. Its effects and uses are similar to those of æther.

Spiritus ætheris aromaticus.—This is prepared by digesting cinnamon, cardamoms, long pepper, and ginger, in the spirit of sulphuric æther. Its dose is about one drachm.

3. *Spiritus Ætheris nitrici.*

History.—This compound, usually denominated *sweet spirits of nitre*, was known to Raymond Lully in the thirteenth century.

Preparation.—It is prepared by distilling nitric acid with a large excess of rectified spirit, by which there is procured nitric æther, in combination with some unaltered spirit,—the compound being termed *spirit of nitric æther.*

Theory of the process.—The formation of nitric æther is imperfectly understood, but the following account is probably correct, as far as it goes. Part of the oxygen of the nitric acid unites with some of the hydrogen and carbon of the alcohol to form water and carbonic acid: the products of the deoxidized nitric acid are nitrogen, protoxide and binoxide of nitrogen, and hyponitrous acid. From the dehydrogenated and decarbonized alcohol are formed acetic, oxalic, and oxalhydric acids (the last-mentioned acid has often been confounded with malic acid). By the action of the hyponitrous and acetic acids on some alcohol, hyponitrous and acetic æthers and water are formed.

Properties.—Spirit of nitric æther is a colourless, or slightly yellow, limpid liquid, having a fragrant æthereal odour, and a pungent, slightly acid taste. Its specific gravity should not exceed 0·831 It is volatile and inflammable. By keeping, it undergoes decomposition, and acquires acidity.

Composition.—Pure spirit of nitric æther should consist merely of nitric æther and alcohol; but as met with in commerce, it is a variable product. Nitric æther is composed of—

4 atoms carbon	24
5 atoms hydrogen	5
4 atoms oxygen	32
1 atom nitrogen	14
1 atom nitric æther	75

It is, however, believed that the elements are so arranged as to form three binary compounds,—ætherine, hyponitrous acid, and water,—and which, by their combination, constitute nitric æther, which, if this view be correct, ought then to be termed *hyponitrous æther.*

1 atom ætherine	28
1 atom hyponitrous acid	38
1 atom water	9
1 atom nitric (or hyponitrous) æther	75

Physiological effects.—The inhalation for a long period (as several hours) of the vapour of this compound has produced insensibility and death. When swallowed its operation is believed to be somewhat similar to that of sulphuric æther, but considerably more feeble. It acts more powerfully than other æthereal compounds on the urinary organs, increasing the flow of urine. It is believed also to have a diaphoretic effect.

Uses.—It is commonly employed as a constituent of the common fever mixture, which contains, besides this substance, the acetate of ammonia, and sometimes tartar emetic. In dropsical complaints it is conjoined with other diuretics; for example, squills, nitre, and foxglove. The dose is about a tea-spoonful.

4. *Acetic Acid.*

History.—Common vinegar must have been known from the most remote periods. Weak acetic acid, prepared by the distillation of vinegar, was known in the eleventh century. When prepared from wood it is termed *pyroligneous acid*, and is frequently impregnated with an empyreumatic oil.

Preparation.—The dilute acetic acid of the Pharmacopœia is ordered to be prepared by distilling vinegar in glass retorts. The first $\frac{1}{8}$ part which comes over is rejected, on account of its consisting principally of water. By this process the acid is obtained colourless, and free from several impurities contained in vinegar.

The mode usually adopted for the preparation of acetic acid on the large scale, is to distil wood in large iron vessels. Volatile matter is disengaged, and there

is left in the distilling vessel, charcoal. The volatile matter, when condensed, consists principally of three substances, namely, acetic acid, pyroxilic spirit (called in shops pyroligneous æther), and an empyreumatic oil. The acid is then neutralized by chalk, and by this means converted into acetate of lime: this is digested with sulphate of soda, by which sulphate of lime and acetate of soda are procured. The latter is distilled with sulphuric acid, and furnishes concentrated acetic acid.

Properties.—Pure acetic acid is rarely seen: as met with in the shops it is mixed with a variable proportion of water; and hence its properties are not uniform. In this hydrated state it constitutes a limpid colourless liquid. When very dilute its odour is pleasant, and its taste acid; but in a concentrated state the odour is most pungent, and the taste corrosive.

Composition.—Pure acetic acid consists of—

3 atoms hydrogen	3
3 atoms oxygen	24
4 atoms carbon	24
1 atom acetic acid	51

Characteristics.—Free acetic acid is known by its odour and volatility. The neutral acetates are all soluble with the exception of those of molybdenum, and tungsten: the acetate of silver, and of the protoxide of mercury, are not very soluble. The acetates are recognised by the odour of vinegar, which they emit on the addition of sulphuric acid, and by the white lamellar and pearly precipitates they form with the nitrate of silver, and the proto-nitrate of mercury.

Physiological effects.—In the concentrated form acetic acid is a corrosive poison. Its chemical influence depends partly on its affinity for water, and partly on its solvent power for the fibrine and albumen of the animal tissues. Its vapour is very pungent and irritative. Somewhat diluted, this acid acts as a powerful irritant, producing rubefaction and vesication. Swallowed in a very dilute form, it acts in a very similar manner to the mineral acids already described: it occasions a temporary increase of appetite, but its continued use brings on a slow inflammation of the alimentary canal; and, according to Morgagni, it has produced schirrus of the pylorus. In proper medicinal doses it acts as a refrigerant, and promotes the urinary secretion.

Uses.—Under the name of aromatic vinegar, concentrated acetic acid, flavoured with other odorous substances, is employed in smelling bottles. It is used as an excitant in syncope and asphyxia, and sometimes to relieve head-ache.

The concentrated acetic acid sold in the shops under the name of strong pyroligneous acid, is a valuable remedy for ring worm and scalled head. It is to be applied by means of a piece of lint and a stick. Sometimes it is employed as a speedy rubefacient and vesicant, as in croup. It is frequently used to destroy warts and corns.

In the diluted form, or as common vinegar mixed with water, it may be employed as a refrigerant in fevers and hæmorrhages. It is recommended as an adjunct to sugar of lead, to prevent the conversion of the latter into carbonate of lead, which, according to Dr. A. T. Thomson, is more apt to produce lead colic than the acetate. It is used also to counteract the effects of opium and other narcotic poisons, though it must not be exhibited until these have been evacuated from the stomach.

CLINICAL LECTURES

ON

DISEASES OF THE SKIN.

By J. P. Litchfield, M.D.

Physician to the Infirmary for Diseases of the Skin, &c. &c.

Acne—A. Punctata—A. Simplex—A. Indurata—A. Rosacea—A. Syphilitica.

The eruptions of acne appear chiefly on the face, neck, shoulders, and upper part of the breast. They are placed by Bateman in the order Tuberculæ, and by Rayer and Biett among the Pustulæ. They consist of numerous hard inflamed tubercles, or pimples, with a distinct elevated base, which suppurate slowly, and partially reappearing at intervals on the parts named, but scarcely ever descending to the lower parts of the trunk, or to the extremities.

The disease results, in the first instance, from obstruction of the sebaceous follicles, which gives rise to inflammation, the formation of pus, and occasionally the obliteration of the follicle in which the disease was engendered; and as the sebaceous follicles are chiefly distributed over the forehead, alæ of the nose, sternal and scapular regions, we find, as we have stated, the disease nearly restricted to these parts of the body.

Follicular inflammation has been found chiefly to prevail among persons of a sanguine temperament and florid complexion, and more especially among young persons between the ages of fifteen and thirty; it is also common to individuals of

a scrofulous diathesis, and in many of its forms is sympathetic of derangement of the chylopoietic viscera, or morbid irritability of the stomach. In some cases the disease is found to follow continued excesses in eating or drinking; and in such cases it is almost invariably accompanied with a furred yellow tongue, feverish and offensive breath, constipation, and general debility.

Occasionally the eruption is confined to the *alæ nasi*, when it produces considerable enlargement and distortion of that very prominent organ, the nose. In such cases the patient meets with little commiseration, the disease being always popularly explained as the result of good living. I may, however, state, in opposition to at least a part of this doctrine, that I have now under my care two private patients, whose habits are very strict and regular, in whom the disease is entirely owing to derangement of the chylopoietic viscera. One of these cases is that of a steady scientific gentleman, whose habits are sedentary, and as much opposed to excesses of any kind as can well be imagined. The other is that of a young unmarried lady, possessed of considerable personal charms, apart from this disfigurement, and in whose diet no suspicion of irregularity can occur.

On the other hand, we find dram-drinking, and the indulgence of a voracious appetite, among the most common *exciting* causes of the disease, in constitutions previously disposed to it. The chronic inflammatory redness, which constitutes the worst form of acne, is invariably the result of repeated attacks of the disease, and long-continued obstruction of the follicles, the parts affected, especially the face, being subject to severe reaction from the chilling effects of cold, which retards the healthy progress of suppuration, at the same time that it gives birth to fresh inflammation.

In this way new collections become formed beneath the surface of the old eruptions; and these collections sometimes proceed to suppuration, and at other times become sluggish and indurated, their removal being left to the absorbents, an operation which these vessels occasionally fulfil only in part; so that chronic inflammation of the tissues is set up, the follicles are destroyed, and confirmed turgescence of the parts occasioned.

Acne Punctata.

The patient, Eliza Kilby, ætat. 21, has laboured under acne punctata between five and six years. The disease has been named maggot pimple, from the vulgar but erroneous notion that the black points with a worm-like appendage, which are familiar to all, and which sometimes constitute the centre of the eruptions, are really small worms or grubs, generated in the skin, instead of their being concrete mucus or sebaceous matter, moulded in the diseased and distended ducts of the sebaceous glands into this vermicular form; the little black point on the surface, supposed to be the head of the insect, being the protruded end, blackened by exposure to the atmosphere. In some of the eruptions the puncta do not appear, in consequence of the ends not being protruded; but if the nascent and untouched pustule is opened with the point of a flat needle, and examined through a magnifying glass, the diseased follicle will be invariably discovered in the eruption.

The concretions formed in the ducts of the sebaceous glands may be extracted by pressing on both sides of the speck with the nails, until the hardened matter is forced out: a blunt curved forceps has also been contrived for the purpose, by a surgical instrument maker named Hattersley, and the points, though numerous, are easily removed by these means. After their removal the disease is known as the species acne simplex.

Among the ancient authors who have written upon the subject of acne, are Ætius and Celsus: the last-named author states that the Roman ladies in his time were so solicitous of maintaining their beauty, that he deemed it necessary to mention the remedies for this disease, which was otherwise too trifling to deserve the notice of the scientific practitioner. It is obvious, however, that Celsus alludes only to the common pimple, and not to the more severe forms of acne; and it is probable, under any circumstances, that the same ungallant declaration would be but ill received by our fair patients in the present day.

In the case of Eliza Kilby, the parts affected present the usual remarkable phenomena. The orifices of the follicles of the skin of the face and shoulders are extremely apparent, and largely developed; the integuments in these regions being unctuous and shining. In some of the eruptions the dark puncta are visible; in others you see the pimples without any puncta. The pustules appear in regular succession, under the form of inflamed and slightly-conical elevations, the bases being hard, and surrounded by a red blush or areola. Each elevation suppurates slowly, and pursues its course independently of those which surround it; so that you may see, as in the present case, the eruptions with or without the puncta, in a state of suppuration, or only progressing towards

it; or the pustule itself transformed into a tubercle, and replaced by a cicatrix, or induration of a pale red colour.

No immediate exciting cause can be assigned for the production of the disease. In the present case the patient is of a bilious temperament, and has suffered some inconvenience from torpor of the liver. The uterine and all other functions are properly performed, and the only derangement present consists in slight disorder of the digestive organs. To remedy this we ordered the patient alterative doses of Plummer's pill every alternate night, with a saline aperient on the following morning. We also recommended her to apply to the hepatic region an ointment formed of that very active principle the iodide of carbon. By these means the liver has been restored to its healthy action, and the bile now secreted is pure in quality, and of a proper quantity.

The use of stimulating external remedies, as practised by the ancients, is certainly objectionable in cases where any constitutional derangement exists; but when these are removed, and in cases purely local, I have found the sulphur vapour an invaluable remedy. In the present case, after relieving the congestion of the liver, I ordered the patient to have recourse to the sulphur bath and vapour, which has had the effect of restoring the healthy action of the diseased follicles, so that very slight traces of the eruption now remain.

I have found stimulants employed in this way preferable to the spirituous lotions, combined with oxymuriate of mercury, recommended by some writers; indeed, the action of repellants, such as the mercurial salt in question, which is said to be the active principle of an empirical preparation in general use—viz. Gowland's lotion, is decidedly objectionable, inasmuch as they check the determination to the cutaneous surface, and give rise to congestion in more important organs.

In one case which recently fell under my care, where the eruption was confined to the neighbourhood of the sternum, and where symptoms of pulmonary disturbance presented themselves, I have tried, without intending to practise on the homœopathic principle *similia similibus*, the use of tartarized antimony ointment, which produced a similar pustulous eruption, and relieved the original disease by its repeated use. I have also had recourse to blisters and frictions, with croton oil, in cases where the eruption was confined to the chest and shoulders, with the best possible results.

Acne Simplex.

The remarks which I have made respecting the diagnosis and treatment of acne punctata, apply equally to this variety of the disease; indeed, the two forms are constantly found blended together, and their separation into different varieties is, in my opinion, rather to be deprecated than desired. It is true that Dr. Copland seems inclined to differ from this view of the subject, and to consider acne punctata as the only variety of the disease which has its seat in the follicular glands, the other species being situated, according to this gentleman, in the proper structure of the cutis vera. I believe, however, that the presence of diseased sebaceous follicles may be ascertained in both forms of the eruption, and that the disease always arises, in the first instance, from obstruction and inflammation of these ducts.

The case of Robert Osborn, ætat. 19, to which I solicited your attention at a former meeting, is one of simple acne, so common to young subjects approaching adolescence, and which is thought to depend on a plethoric state of the system, leading to the more solid secretion of sebaceous matter. I have already described the steps of the treatment to you, and may now add, that the disease has entirely yielded to the alternate use of soda and sulphur baths, and to the internal administration of liquor arsenicalis.

Acne Indurata.

This species differs from the preceding both in the size of the eruptions, which are larger and also more indurated, and in the character of the inflammation, which is slower, more deeply seated, and more extensive. In the case of Emma K., ætat. 19, the eruptions, which are of a conical or oblong-conoidal form, cover nearly the whole of the face, but more especially the forehead and sides of the nose, where the follicles are most thickly distributed. Some of the eruptions, which are several lines in diameter, have a bright roseate hue, and advance, at their apices, slowly to suppuration; they also undergo the process of scabbing, common to the other varieties, and even occasionally suppurate a second time, if any new irritation arises; they also leave behind them a livid discoloration, and sometimes a slight depression, which is long in wearing off, or may never disappear at all.

Stone-pock, or indurated acne, is often complicated with chronic disease of the viscera. In the present case there is a strong tendency to phthisis, together with functional disturbance of the arterial system, and great uterine irritation, produced, as I have ascertained, by the addiction of the patient to *onanism.* I am satisfied that this form of the disease, mixed with undue excitement, or the imperfect perform-

ance, of the uterine functions, is very common among single women. In two cases which have recently fallen under my notice, the disease disappeared shortly after the patients had "changed their condition;" but as the *specific* in these cases is not to be found in our pharmacopœias, I fear we must be content to offer our advice on the subject, and try other attainable remedies.

In the case under consideration there is also deficient menstrual discharge. To restore this function, and strengthen the general health, I have ordered the patient the mist. ferri comp. I have also given her strict directions as to general conduct, and have directed her to use the marshmallow fomentation as an external application to the eruptions.

Acne Rosacea.

This variety, known as the common carbuncled face, consists of small, slowly-suppurating tubercles, accompanied with a shining redness, and an irregular granulated appearance of the integuments of the part affected. Acne rosacea usually first makes its appearance at the end of the nose, and afterwards spreads from the alæ of the nose to the cheeks, which last it does not usually cover altogether. In the morning, after a night's rest, the eruptions are more pale and less uniformly red ; but after any strong excitement, either from the heat of the weather, the indulgence of the passions, or from excesses in eating or drinking, especially the use of ardent spirits, the eruptions swell out, and acquire the intense red colour which has gained the disease the popular appellation of "rosy drop." When the disease has continued some time, the cuticle becomes gradually thickened, and its surface granulated and variegated by the ramifications of the cutaneous vessels, and the suppuration of the *vari*, which successively appear and disappear on the parts affected.

The patient, R. D., has laboured under acne rosacea more than seven years. He has seen, as you have heard him state, considerable military service in our colonies, and has returned with an extensive disease of the liver, the result of exposure in a tropical climate, and of those excesses to which, I am sorry to say, from personal observation, both branches of our service are but too much addicted. In this case the nose is enlarged to an enormous size, is of a puffy appearance, and fiery red colour; the nostrils are largely dilated, and their alæ fissured and divided into lobes, the fissures and ulcerations being very obstinate, and disinclined to heal.

In the treatment of this disease our attention has been chiefly directed to the removal of the congestion which exists in the liver. For this purpose we have had recourse to local bloodletting, by means of half a dozen leeches applied to the hepatic region, and followed by the application of a blister; the discharge from the latter being kept up by the use of savine ointment. He has also taken blue pill, cautiously administered, with the extract of taraxacum, until the system has become slightly affected. Under this treatment the obstruction of the liver has in a great measure given way, although we can hardly hope to restore this viscus to a perfectly healthy state; and the eruptions on the face appear to have assumed a more healthy character, in proportion to the progress we have made in restoring the functions of the chylopoietic viscera. The cases of this variety of acne are usually very unpromising; but as we have proceeded thus far favourably, I propose now to put the patient on a course of the hydriodate of potash internally, with the use of iodine baths externally twice a week. You will have an opportunity of watching the influence of this treatment, which I have found succeed in a similar case. I should mention that the patient, R. D., has not forgotten his military habits of obedience, but is exceedingly tractable as regards diet and the general management of his case. I have not thought it advisable to restrict him altogether from the use of strong drinks, but have recommended him to substitute porter for ardent spirits.

Acne Syphilitica.

I think this eruption may also be included with propriety under the general heading, acne. It chiefly attacks the forehead, face, neck, and upper part of the trunk, resembling in its size and form the pustules of acne rosacea placed upon an inflamed copper-coloured tubercular base and areola. The eruptions suppurate slowly at their apices, and form a yellowish-brown scab, which leaves a dark dirty-coloured depression behind. The eruptions are observed in discoloured patches, and the tubercles, or condylomata, are darker and more permanent than the other varieties of acne; they are also frequently accompanied with scaly eruptions, of a venereal character, with ulcerations of the throat, nodes, nocturnal pains, and other syphilitic symptoms.

In the case of John Smith, ætat. 32, all these symptoms were present, and were easily traced to the original venereal taint. In his treatment we have had recourse to the anti-syphilitic tisan of Feltz, a sort of compound decoction of sarsaparilla, which we have seen used with

the best effect in the hospital St. Louis, and which is made after the following directions:—

℞ Antimon. Sulphuret, ℥iv; Aquæ commun. lb. xij.; Rad. Sarsaparillæ, ℥iij.; — Guiac. — Sassafras, aa. ℥iss.; Icthyocol. ℥iss; Hydrarg. Oxymur. gr. iij.

The ingredients, excepting the corrosive sublimate, to be boiled (the antimony in a muslin bag), until reduced to half the quantity; the decoction to be strained, and the sublimate added, previously dissolved in half a drachm of spirit of wine. The patient has taken this drink in the proportion of a pint daily, and has applied the following ointment externally to the eruptions:—

℞ Proto-Iodureti Hydrarg. ℈ij.; Adipis Suillæ recent, ℥ij. M. ft. ung.

He has used the ointment every night and morning, and has taken the decoction, increasing the dose to a pint and a half daily, for ten days. The parts are now nearly freed from eruption, though the integument still remains somewhat discoloured.

I have likewise found the preparations of iodine internally, and in the form of baths, exceedingly useful in this troublesome variety of the disease.

SKETCH

OF

THE COMPARATIVE ANATOMY OF THE NERVOUS SYSTEM;

With Remarks on its Development in the Human Embryo.

By John Anderson, M.E.S.

Hon. Fellow of the Physical Society of Guy's Hospital.

[Concluded from p. 951.]

Mammalia. — We have now arrived at the last and highest class, the Mammalia, at the head of which stands man, the "type and essence of animal perfection." We shall find here some most interesting grades of development and structural forms of the cerebral mass to arrest our attention, and we shall observe how rapidly the different parts are added, and those already formed are more highly developed, to constitute the complex brain of the human species. I will notice as before the different parts of the spinal marrow and the brain. The spinal cord is of still less relative size than in the preceding classes; it is traversed by an anterior and posterior longitudinal fissure, and contains a central canal, differing only in this last particular from the same part in man. In a full-grown mouse, weighing 227 grains, I found the spinal marrow weighing one grain and a half, the brain six grains and a half—the proportions being as 100 : 22. We thus observe that the former is of much less relative size than the latter.

The following is a table shewing the relative proportions of the brain and spinal marrow in the four classes of Vertebrata:—

			Brain.		Spinal Marrow.
Pisces	Lamprey	as	100	:	750
Reptilia	Triton	as	100	:	180
Aves	Pigeon	as	100	:	30
Mammalia	Mouse	as	100	:	22

The spinal cord passes lower down the vertebral column than in man, but terminates by a true cauda equina, as I have found in the bat and mouse, in which latter animal it was continued into the sacrum, but not into the caudal vertebræ, as in the preceding classes. In the bat it descended no lower than the eleventh dorsal vertebra, a conformation rather unusual*: the fissure on its posterior surface was deep in those animals, but it becomes less evident as we approach the human species. It presents three distinct enlargements in its course: a superior one, the medulla

* Meckel (Archiv fuer Physiologie) also states, that in the hedgehog the spinal cord terminated in the thoracic vertebræ.

oblongata; a median, and a posterior one, where the nerves for the extremities are given off: this I found the case in the mouse and bat, though in the former animal the superior and median enlargements were so closely approximated as to render the spinal cord of great thickness in the thoracic region of the body*.

I have already spoken of the gradual retraction of the spinal cord in the human fœtus, which we have witnessed taking place so gradually in the varied forms of mammiferous animals: its central canal, which has been described in all the Mammalia, exists also in the human fœtus up to the eighth month. The superior enlargement, the medulla oblongata, presents in this class the characters of the same part in the human adult brain; for the corp. olivaria are now developed, the fibres of which are directed forwards into the optic chambers: these parts are not developed in the fœtus until the end of the sixth month.

The following is a table shewing the relative proportions of the body and brain in the four classes of Vertebrata:—

			Brain.		Body.
PISCES	Carp	as	100	:	80,600
	Chub	as	100	:	81,200
	Roach	as	100	:	52,900
	Lamprey	as	100	:	142,500
REPTILIA	Triton	as	100	:	27,300
	Turtle	as	100	:	454,500
AVES	Pigeon	as	100	:	9,100
MAMMALIA	Sheep	as	100	:	22,600
	Pig	as	100	:	32,350
	Mouse	as	100	:	3,500

In the brain of the mammalia we shall find the same parts as heretofore to occupy our attention, though at an extraordinarily increased degree of development: this, however, varying greatly in different orders. Its direction, with regard to the spinal marrow, is no longer horizontal, as we found in the fishes and reptiles, but approaching more or less to a right angle; the first traces of which inflection were perceptible in the birds. In all the species of mammiferous animals I have examined, —in the bat (*Vespertilio murinus*), mouse (*Mus musculus*), rat (*Mus rattus*), rabbit (*Lepus cuniculus*), pig (*Sus scrofa domestica*), horse (*Equus caballus*), ass (*Equus asinus*), sheep (*Ovis ammon*), deer (*Cervus dama*), stoat (*Mustela erminea*), cat (*Felis catus*), and monkey (*Callithrix ?*)—the brain exactly filled the cranial cavity, that cavity corresponding with the shape and size of the head. Its size and bulk are greater than in any of the preceding classes, as shown by its relative weight compared with the body. In a sheep weighing, as near as I could calculate, 7466 drachms, I found the brain weighing 33 drachms; the proportions being as 100: 22,600. In a pig weighing about 7116 drachms, the brain weighing 22 drachms; the proportions being as 100: 32,350. The brain of a horse weighed 156 drachms; and, as I before observed, in a mouse weighing 327 grains, the brain weighing 6½ grains, the proportions were as 100: 50,03.

On taking a review of its structure, we find that it presents a great variety of forms and development. I will notice its different parts in the same manner as heretofore. 1. The central hemispheres, or primary cerebral mass, which vary greatly in their size and extent, and are united in the median line by a commissure—the corpus callosum. 2. The optic lobes, or median cerebral mass, which are here small and divided into two pairs, presenting more particularly the characters of the tubercula quadrigemina in the human brain, under which name I shall in future notice them. 3. The cerebellum, or third cerebral mass, which is greatly increased in development, and presents a division into median and lateral portions.

* Carus remarks the same thing in many of the Mammalia with a short neck; the Rodentia, for instance.

1st. The cerebral hemispheres are of large size, but this varies according to the order in which we examine them. In the lower ones they resemble very much the same parts in birds, with regard to their small size and their want of convolutions. In the dolphin they are very short and broad; in the ornithorynchus they are oval, and narrowed anteriorly. In both these animals their surfaces are smooth and unconvoluted. The same occurs in the opossum and myrmecophaga didactyla, amongst the Marsupialia. In the bat I found them no longer than wide ($2\frac{1}{2}$ lines each way), leaving the tub. quad. quite exposed; they were of a triangular form, and perfectly smooth on their surface. In the rabbit, rat, and mouse, rodent animals, they were oblong-ovate, but much narrowed anteriorly. The tub. quad. were quite exposed, but scarcely so much so as in the bat; their surfaces were smooth and unconvoluted, though in the rabbit there were a few slight furrows; on their inferior surface there was a faint groove, dividing them into lobes, the rudiments of the fissura Sylvii. In the pig, horse, ass, sheep, and deer, the hemispheres were more oval in form, more convex, and less narrowed anteriorly; they extended backwards, so as quite to cover the tub. quad., and their surfaces were marked with numerous convolutions; the fissures of Sylvius were more strongly marked, and the division into lobes was more apparent. In the stoat and cat they were similarly shaped and convoluted on their surface, and they extended backwards, covering the tub. quad. and a portion of the cerebellum. In the monkey they were more rounded, very much elevated, broader in the middle, and extended backwards, covering the cerebellum. The convolutions were more numerous than in the preceding classes; the fissure of Sylvius was a deep groove, marking the division into anterior and median lobes, and here, for the first time, was observed the posterior lobes, as yet but of small size, narrowed posteriorly, and free from convolutions. In the orang-outang they are altogether larger, and more approaching the form and character of the human brain, covering the cerebellum entirely, and convoluted on their posterior lobes *.

* For the length, by measurement, of the cerebral hemispheres in these different animals, see a table near the end of this paper.

Passing to the consideration of the human fœtal brain, we have already traced up its organization as far as the fifth month, and we shall presently see that in the succeeding months it passes very rapidly through its different stages, particularly with regard to increase in size. Concerning the cerebral hemispheres, or primary cerebral mass, I have already described their structure and appearance at the fifth month, and have shewn the analogies existing in those parts in the birds. We find also that in the lower Mammalia, as the bat, the rabbit, and other rodentia, the cerebral hemispheres are in a somewhat similar state of organization, for they also are smooth, unconvoluted, and extending so little backwards as to leave the tub. quadrigemina partly exposed; they are also divided into anterior and middle lobes by a delicate fissure of Sylvius, and so also are they in the human fœtal brain at that age. At the sixth month, however, according to Tiedemann, they cover the entire of the tub. quadrigemina, and a greater part of the cerebellum; on their internal surface are to be seen many grooves, the rudiments of the convolutions, while the superior and lateral surfaces are smooth; underneath may be observed the anterior, middle, and posterior lobes. These marks of increased development I have just described in many of the Mammalia, in the pig and horse, hind, sheep, cat, and stoat. I there stated that the cerebral hemispheres extended backwards, covering the tub. quadrigemina entirely, and the cerebellum partially; that they were obviously divided into anterior and middle lobes, the fissura Sylvii being more apparent. The external appearance of the hemispheres would be better represented by the rodentia, where (as I have just described in the fœtus of six months) there are a few grooves, into which the pia mater sinks. At seven and eight months, the cerebral hemispheres are so increased in size as to extend even a little beyond the cerebellum; depressions appear here and there, the rudiments of the convolutions; the fissures of Sylvius are deep. In a species of monkey, I have just described them as quite covering the cerebellum. At eight months, the anterior, middle, and posterior lobes are well defined; the grooves, depressions, and convolutions, are deeper and more numerous, excepting on the posterior lobes; which is

precisely similar to what I have described in the lower Quadrumana. At the end of the eighth month, we can imagine all the convolutions formed, even on the posterior lobes; and this agrees with the brain of the higher simiæ, as the chimpanzee, where the posterior lobes are marked with convolutions. At nine months they present the exterior appearance and relative size of the adult brain, and as far exceeding in these particulars the higher simiæ, as in the increased energy of their functional powers.

These cerebral hemispheres are united by an important commissure, which makes its first appearance in mammiferous animals, the corpus callosum: in the lower orders, as in the bat, rabbit, rat, and mouse, I have found it very short,—shorter even than in the tub. quadrigemina, as in the human fœtus at the sixth month; in the pig, ass, and sheep, it was longer and broader; in the stoat, and cat, and monkey, it was increased in length and width, approaching the characters of the corpus callosum in the human adult brain. This commissure pursues an analogous grade of development in the human fœtus. I have already observed, that at the fifth month slight traces of it only were apparent, as in the birds; at six months it is (according to Tiedemann) very short and narrow, as I have just described in the bat and lower Rodentia; at seven months it is longer, and covers the optic chambers and third ventricle, as in the Pachydermata, Solipeda, Ruminantia, and Carnivora; and at eight months it extends to the anterior pair of tub. quadrigemina, as in the Quadrumana.

On cutting into the cerebral hemispheres, we find cavities in their interior, the lateral ventricles. In the bat and rodent animals, I found them of small size, but large in proportion to the hemispheres; in the pig, sheep, stoat, and cat, they were larger and broader, but smaller in proportion to the hemispheres. In all these animals the anterior and descending cornua were observable; the posterior I found only in the monkey, where the lateral ventricles quite approached the characters of the same parts in the human adult brain. I have already observed, that in the human fœtus at the fourth and fifth months, the lateral ventricles were very capacious, as in reptiles and birds; at the sixth and seventh months their cavities, according to Tiedemann, gradually contract, and the anterior cornua still communicate with the cavity of the olfactory nerve, as I have just demonstrated in all the Mammalia excepting the Quadrumana, where, in their size and the existence of the posterior cornu, they resembled the human fœtal brain at the eighth and ninth months, and in the adult state. In the interior of these ventricles are to be observed the corpora striata, tænia (for the first time observable), optic thalami, and fornix. In the bat genus and Rodentia, I found the corpora striata very large, forming, indeed, the greater parts of the hemispheres of the brain, and the tænia very narrow; in the pig, sheep, and cat, they were oblong, and smooth; in the monkey they were also oblong, and though in reality large, appeared smaller, when compared with the hemispheres, than in the preceding classes,—which apparent defects of relation I should consider, with Tiedemann, evidently to depend on the greater augmentation of the hemispheres. In the human fœtus the corpora striata pursue a similar mark of development; the tænia also does not exist until the latter months of fœtal life, and we have found that it only makes its appearance for the first time in the Mammalia. The fornix, with its appendages, is for the first time observable in this class of animals, and I have found it to exist in all the brains I have examined; in the lower orders, its relative size, particularly of the hippocampus major, was somewhat considerable.

From the anterior part of these cerebral hemispheres the olfactory nerves arise, which still possess many points of extreme interest. In the dolphin and other Cetacea, they are entirely wanting. In all the mammiferous animals I have examined, except the Quadrumana, they consisted of oblong or rounded medullary masses, situated on the cribriform plate of the ethmoid bone, from which filaments were given off to be distributed on the pituitary membrane. In the lower orders, as in the bat, rabbit, rat, and mouse, these masses or ganglia of the olfactory nerves were situated on a plane directly anterior to the cerebral hemispheres, and might be seen on looking upon the superior face of the brain, these latter not being yet sufficiently developed anteriorly to cover them; in the pig, they were nearly covered by the hemispheres; in the horse, ass,

sheep, and deer, they were quite covered by them, and were only to be seen on the inferior surface of the brain; in the cat they were similarly situated, but the anterior edge of the hemispheres projected still further beyond them. In all these animals a medullary band or tract connected them with the median lobes of the hemispheres, and in all they contained cavities, which communicated with the lateral ventricles; this communication I have also stated to exist in the human fœtus up to the seventh month. In the monkey the olfactory nerves consisted of free, flattened, medullary bands, situated on the inferior surface of the anterior lobes of the brain, precisely the same as in the human adult brain and in the full-grown perfect fœtus.

2dly. The optic lobes or median cerebral mass, or, as they are now to be called, the tubercula quadrigemina, consisted, in all the mammiferous animals I have examined, of an anterior and posterior pair of ganglia, in which cavities were no longer perceptible. They differed in relative and comparative size and in position. In the bat, rabbit, rat, and mouse, the *anterior* pair were the largest, and, compared with the cerebral hemisphere, were very voluminous; in the pig, horse, ass, sheep, and deer, the anterior pair were also the largest, but they were of *less* proportional size with the brain; in the cat and stoat the *posterior* pair were the largest; in the monkey they were nearly of *equal* size, and presented less relative volume, thus approaching very much the characters of the tub. quadrigemina in the human adult brain. With regard to their position, as I have before observed, in the lower orders they were situated behind the cerebral hemispheres, and were quite exposed, while in the higher orders they were situated underneath the hemispheres, and quite covered by them, as in the human adult brain.

The tub. quadrigemina, or median cerebral mass, in the latter months of the human fœtus pass through a similar grade of development. I have already spoken of their organization up to the fifth month, when they were compared to the same parts in the birds, and may now be compared to the Cheiroptera and Rodentia amongst the Mammalia. At the sixth month, according to Tiedemann, they are quite covered by the cerebral hemispheres, and their internal cavity is diminished; at the seventh month they are divided into two pairs of ganglia, the nates and testes,—the internal cavity is nearly obliterated, and the communication of the fourth ventricle with the third is reduced to a mere canal, constituting the aqueduct of Sylvius, and their structure altogether is the same as at the eighth and ninth months, and as in most of the higher Mammalia.

3dly. The cerebellum, or third cerebral mass, is remarkable for its great development; nevertheless, it passes through many grades in the different orders. In all the animals I have dissected, it was marked externally by transverse striæ and small convolutions, and presented a division into median and lateral lobes. The relative size of the mass itself, and of its different parts, and the number of external striæ, differ according as the animal we examine is high or low in the class. In the bat I found it within half a line as long as the cerebral hemispheres, the proportions being as 100 : 125; the lateral lobes were just observable, smooth on their surface, but on the large median portion there were two transverse striæ. In the rabbit I found its proportional length in the median portion to that of the cerebral hemispheres, as 100 : 207. The lateral lobes in both were more distinctly developed, and the striæ were better marked. In the horse its proportional length was as 100 : 256. In the sheep, as 100 : 232. In the deer, as 100 : 233. The lateral lobes were very evident in all, and convolutions were observable on the external surface, particularly in the horse. In the cat its proportional length was as 100 : 200; in the stoat, as 100 : 228. The external convolutions in both were numerous: in the monkey, the proportional length was as 100 : 305; the convolutions were numerous and small, thus approaching very much the characters of the same part in man.

On cutting into its substance in many of these animals, the appearance of the arbor vitæ was more or less distinct, similar to the human cerebellum. On its inferior surface was situated its great commissure, the pons varolii, which first makes its appearance in this class of animals, and, with the exception of

the transverse fibres forming it being thinner and fewer in number, particularly in those lower orders of Mammalia where the cerebral hemispheres were small, it presented but little differences from the same part in the human adult brain. This latter remark will equally apply to the fourth ventricle, which has been to me an object of considerable interest, and which, from being at first an open exposed cavity, is now shut in and concealed.

I have already spoken of the cerebellum in the human fœtus up to the fifth month, when lateral hemispheres and external striæ were just making their appearance, as represented in the birds. At the sixth month the lateral portions (according to Tiedemann) have acquired a greater development, and its external surface presents both deep and superficial grooves, which divide the lobes into lobules; the pons varolii is small. At the seventh month the hemispheres have still increased in size, and the transverse grooves are deeper. At the eighth month the hemispheres have acquired their full development; and at the ninth month all the parts are developed, and the leaflets have appeared.

On reviewing these statements of the nervous system in the Mammalia, and in the advanced human fœtus (sixth, seventh, and eighth months), we observe that the brain now predominates greatly in bulk over the spinal marrow; this latter is also shorter, and terminates by a true cauda equina. The primary cerebral mass has now acquired its maximum of development as regards size; the two portions of which it is composed are united by a large commissure; their exterior surface is convoluted. The median cerebral mass is divided into two pairs of ganglia, in which the cavities are obliterated. The posterior cerebral mass has lateral hemispheres developed, striæ and convolutions on their exterior surface, and an important commissure, the pons varolii, on its inferior surface.

In the perfect fœtus, all the parts of the human adult brain are observed *, the anatomical knowledge of which was pre-supposed.

The following is a table, shewing the actual and relative lengths of the cerebral hemispheres and the cerebellum in the Mammalia:—

Animal.	Length of Cerebral Hemisphere.	Length of Cerebellum.	Proportions.
Bat	$2\frac{1}{2}$ lines.	2 lines.	As 100 : 125
Rabbit	$14\frac{1}{2}$ —	7 —	.. 100 : 207
Rat	$7\frac{1}{2}$ —	$4\frac{1}{2}$ —	.. 100 : 166
Mouse	4 —	$2\frac{1}{2}$ —	.. 100 : 160
Horse	64 —	25 —	.. 100 : 256
Sheep	36 —	$15\frac{1}{2}$ —	.. 100 : 232
Deer	42 —	18 —	.. 100 : 233
Stoat	8 —	$3\frac{1}{2}$ —	.. 100 : 228
Cat	18 —	9 —	.. 100 : 200
Monkey	$30\frac{1}{2}$ —	10 —	.. 100 : 305

ON THE FUNCTIONS OF THE MUSCLES AND NERVES OF THE EYE-BALL.

To the Editor of the Medical Gazette.

Sir,

On no subject in the whole circle of physiology is there more uncertainty, or greater discrepancy of opinion, than with regard to the functions of the muscles of the eye-ball, and the nerves connected with them.

We see that there are six muscles arranged round the globe of the eye; that four of these, the recti, proceeding from the back of the orbit, are distributed to its four sides, at regular intervals; and that the other two, the obliqui, are directed from the anterior and nasal side of the orbit, and are inserted transversely across the eye-ball, the one under the tendon of the superior rectus, the other passing over the inferior, and inserted between it and the external rectus.

* There is, however, no distinction between the cortical and medullary substance.

This is a very general statement of their position and arrangement. With respect to their actions, we see clearly enough that the recti turn the eye in the direction in which they are inserted. With regard to the obliqui, however, the matter is not so obvious. The superior oblique rotates the eye-ball, by bringing the point of its insertion towards the inner angle of the eye, and therefore directs the front of the eye to the same point, viz. *inwards*. The inferior oblique rotates the eye-ball in precisely the opposite direction, the insertion of the muscle being brought towards the inner angle, and the front of the eye, therefore, turning also inwards, but by an opposite rotatory movement. So that if the eye were rotated in one direction by an oblique muscle, it will be returned to its former position by the action of the other; and if both were in action together, there would be no rotation at all, but the eye would be drawn directly inwards. Thus much for the general view of the actions of these muscles.

But, in giving this outline of the situation and actions of these muscles, we are still far from understanding them perfectly. We see, indeed, that by these actions the eye-ball may be moved about in every possible direction; but we also perceive that all these motions could be effected by the aid of the recti alone, except the rotatory motions, which are imperceptible, if they ever occur. Mr. Lawrence has remarked, "the precise use of these oblique muscles is not very obvious, as the recti seem capable of performing every sort of movement which the globe is capable of." But surely we shall not be right in saying that they are superfluous, since, had there been no use for them, we may be very certain that they would not have existed.

Here the question forcibly presents itself—If the eye be directed inwards by the action of the internal rectus, what need is there of the oblique muscles to draw it inwards also? Before we can satisfactorily answer this question, however, it will be necessary to refer to the nerves. This may be thought a singular mode of elucidating one obscure point by reference to another equally obscure. But it must be very obvious, that as the nerves are the agents which direct the actions of the muscles, we cannot properly overlook these in referring to the latter.

We observe, then, that to these six muscles of the eye-ball there are no less than three motor nerves distributed; and, what is very remarkable, that two out of the three nerves are each distributed to a single muscle, whilst the other four muscles have but one nerve amongst them. These nerves are the third, the fourth, and the sixth. The sixth nerve is exclusively distributed to the external rectus, the fourth to the superior oblique, and the third to the other three recti and the inferior oblique. It is upon this distribution of the nerves, then, that I propose to arrange the muscles into three different divisions. In the first, therefore, we place the muscles which are supplied by the third nerve, viz. the superior, internal, and inferior rectus, and the inferior oblique; in the second we reckon only the external rectus, the muscle of the sixth nerve; and in the third, the remaining muscle, the superior oblique, the muscle of the fourth nerve.

Now, with regard to the muscles of the third pair, we perceive that they are brought into action in all those motions in which the two eyes correspond, such as straight forwards, with its modifications upwards, downwards, and inwards.

But there is a motion of the eyes in which one eye is turned outwards and the other inwards; and this is always the case when we view an object laterally. Indeed, under no circumstances can we direct both eyes outwardly together.

Now here we see the reason of all this complexity of the muscles and nerves of the eye-ball. It is manifest that the external rectus must have a separate nerve from that which goes to the muscles which direct the eye forwards, since these latter muscles direct one eye only in accordance with the other. So that we have a nerve for the muscles which direct the corresponding motions of the two eyes, which is the third nerve, and we have another nerve for the muscle which directs the eye outwards, where there is no correspondence in the action of the muscles of the other eye, and that nerve is the sixth. But if the external rectus were to act in one eye with the same muscle in the other, then one eye would be directed towards the object desired to be

seen, and the other would be turned away from it. Hence the necessity of another nerve and another muscle, to direct the eye inwardly with the outward action of the opposite eye, for the third nerve and the internal rectus muscle are destined to effect those motions only in which there is a correspondence of the two eyes; and here we find the trochlearis nerve and muscle to accomplish this point.

Doubtless, had it not been for this lateral direction of the eyes, there would have been no necessity for any muscles, except those which are used in looking straight-forwards, and then there would have been none of that complexity of either muscles or nerves—one nerve and one class of muscles would alone have been necessary. But, by supplying us with a muscle to turn the eye outwards, and by farther giving us the power, at the same time, of turning the opposite eye inwards, in order that both may be directed to the same object, a most intricate piece of mechanism has been produced—two additional muscles and two additional nerves have been added, the one to effect the outward action of one eye, and the other to associate with it the inward direction of the opposite eye.

The addition of the inferior oblique seems a necessary consequence to antagonize the trochlearis, and is therefore supplied by another nerve.

And this view, I think, offers a clearer and more satisfactory explanation of the physiology of the muscles and nerves of the eye-ball, than any other with which I am acquainted.

I have thus endeavoured to express, as briefly as possible, my views on this subject, and have not as yet referred to the opinions of authors who differ exceedingly on these points, not only with regard to the nerves, but also with respect to the actions of the oblique muscles. Thus Albinus, Sir Charles Bell, and most modern authors, give the direction of the eye ball when under the action of the trochlearis, as being outwards and downwards. They suppose that it is inserted behind the centre of motion of the eye-ball, and that when it acts, it pulls the back of the eye forwards and upwards to the trochlea, and thus turns the front of the eye in the opposite direction. It is, however, not inserted behind, but directly over the centre of the eye-ball, or perhaps rather anterior to it, just under the tendinous expansion of the superior rectus, and passing down a little towards the tendon of the external rectus. Meckel, Cloquet, Knox, and some others, however, state that it acts in a contrary direction, viz. inwards; and those who will examine for themselves, will find this to be the true action of that muscle, as I have ascertained by repeated experiments on the muscles *within the orbit*.

With respect to the nerves, we can scarcely say that a rational opinion has been offered, if we except that of Sir C. Bell, who supposes that the fourth is an involuntary nerve, and that the third and sixth are voluntary nerves; but he offers no reason why there should be two voluntary nerves, and that one of them should be distributed to one muscle only, or why the fourth should also be distributed to one muscle only, when he supposes that both oblique are involuntary muscles.

Mr. Bransby Cooper, in his Lectures on Anatomy, speaking of the circumstance of the sixth nerve supplying only the external rectus, admits that "no clear physiological theory has been formed upon this anatomical fact." Nor could any possible reason be assigned why the trochlearis has also a separate nerve, if it turned the eye outwards. To suppose, indeed, that two separate nerves should go exclusively to two separate muscles, the one to turn the eye outwards, and the other outwards and downwards, appears absolute nonsense, and could only be entertained in the entire absence of anything like a plausible explanation of the real facts of the case.

And as both eyes can never be directed outwards together, it must appear a formidable objection to Sir C. Bell's view, that this is an involuntary action, because it is confined to one eye; and equally so that there should be two nerves to turn the eye outwards, when such an action can only take place in but one eye at a time.

With this view of the action of the trochlearis, viz. inwards, we see why, in strabismus, the eye should be so generally turned inwards, so many muscles acting in that direction, whilst there is but one which pulls outwards.

I cannot close this paper without observing that my colleague, Mr. Hunt, first suggested the probability that the complexity of the nerves of the orbit

was connected with the varied motions of the two eyes, which I have pointed out.

If, in these observations, I shall have succeeded in making it appear that such is certainly the case, in the manner I have related, I shall have much satisfaction in thinking that I have contributed to remove one of the obstructions which lie in the onward path of knowledge in this obscure corner of physiology.

I have the honour to be, sir,
Your very obedient servant,
JOHN WALKER.

Manchester, Sept. 12, 1836.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue a abréger."—D'ALEMBERT.

Critical Remarks on certain recently published Opinions concerning Life and Mind. By JOHN ROBERTON, Surgeon, &c. of Manchester.

THE substance of this volume has already appeared in the MEDICAL GAZETTE, in the shape of contributions from the learned author. There are, however, several short papers appended which add much to the interest of the collection. To those who are fond of metaphysical speculations, and of inquiries bearing on matters of such vital interest as those of mind and life, we strongly recommend this very valuable little work. The following extract on the question "whether materialism is ever likely to become popular?" seems specially deserving of the reader's notice.

"The christian materialist (for some christians profess materialism) believes that man at death becomes subject to the laws of chemistry, and dissolves, the elements of which he is composed passing to other uses in the economy of nature—perhaps to live and think in other rational forms; and, further, that God will revive every man; and that immortal life will begin at the resurrection. Therefore, when the materialist perceives the approach of death, it is to be inferred that he expects, in the coming change, not only to lose a consciousness of existence, but to cease entirely *as a being*, except in the remembrance of the Almighty Creator.

"That some few christians, of a philosophic turn, have attained the high faith necessary for holding this view, I am bound to believe; but I cannot imagine that any considerable number have been converts to it; or, that it is ever likely to be cordially embraced as one of the dogmas of a sect. And for the following among a number of reasons which might be assigned:—

"1st. Considerable vigour of mind, (more than falls to the common lot,) is required in order to arrive at a tolerable conception of this doctrine; and, to say the least, all indistinct, incomplete notions concerning it, must inevitably engender repugnance and the horror of annihilation. Perhaps there are few if any instances of christians who, in the immediate view of death, have referred to the materialists' scheme as the only source of hope and comfort regarding immortality.

"2nd. The mental faculties and affections of many, of such, for example, as suffer martyrdom for religion, and of many others dying of slow diseases, continue strong and lively to the moment of dissolution. Such being the case, is it probable that a scheme—requiring the belief that *that* which thinks so acutely, which hopes and loves with so great ardour, which is so capable of adoring and serving the Supreme Being, in the latest moments of bodily life, is to be dissipated with the fuel which consumes the body, or to enter into, perhaps, the organic system of the wild beast employed instead of the stake and the faggots—can ever be acceptable either, by anticipation, to the sufferer himself, or to those who sympathise with his cause? No: I apprehend there is something upon the whole so repulsive in the contemplation of such a dogma—something requiring, in those who embrace it, so much intellect and so little feeling, as will ever hinder it from becoming generally acceptable."

"3rd. To the enslaved, degraded, and oppressed (how large a proportion of the human family!) and to all those who take a deep interest in their condition, the christian materialist's scheme will not be palatable. For while it connects such, as to nature, with the beasts of burden, whose lot they might often envy, and with the clods beneath their

fect, it, on the other hand, in a degree, dissociates them from the unseen—the spiritual realities towards which their hopes and wishes naturally so often arise. It places the gulph of a temporary, but, as it will ever seem to the unreflecting mass of mankind, a dreary annihilation between them and their deliverance; coupling the idea of escape from oppression and a weary life with that of the loss of being."

Selections from the Phrenological Journal. Edited by Robert Cox.

The votaries of phrenology will, we suppose, be delighted to have the *forty* articles in this book in so portable a shape: nor, perhaps, will other persons be dissatisfied with finding what, we presume, are to be considered the choicest things in phrenology collected together in a volume of moderate size. We are ourselves not at all addicted to the "science," as they call it; yet we must say, that though certainly not much edified by the articles in question, we have been tolerably amused with many parts of them. They are wholly taken from the first five volumes of the Phrenological Journal, and have the authors' names annexed; among them those of the Messrs. Combe, Simpson, Ritchie, Elliotson, &c. Two hatters also figure among the contributors—one a London tradesman, the other of Dundee, both stating the result of their observations on the shape and size of their customers' heads.

A Treatise on the Progress and Shedding of the Human Teeth, to their completion in a permanent state. By R. Maclean, Dentist.

This is one of those showy productions, possessed of no scientific interest whatever, which are purely got up for the sake of advertising the author. It is addressed to "parents and guardians of youth," &c. warning them of the importance of attending to their children's teeth, or in other words of putting them under the care of a clever dentist like Mr. M. and others "of the faculty" about town. There is not a word of original matter, that we can find, in the volume, and we implicitly believe the writer when he informs us that "his endeavour has been to simplify acknowledged principles, and to apply them to practice, *in a way which his experience has proved to be most beneficial.*"

MEDICAL GAZETTE.

Saturday, September 24, 1836.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

Cicero.

THE NEW UNIVERSITY CHARTER.

In our last number we gave a copy of the official document, in accordance with the provisions of which it is intended to incorporate the new metropolitan University. As yet it is merely a draft or sketch, presenting little more than the shadowy form of the institution, about the erection of which the public have been of late more or less interested; nor will the outline probably assume a more substantial shape, until Parliament, when next assembled, shall have examined, discussed, and amended its several clauses.

It is somewhat curious that the whole of the session just expired was allowed to elapse without doing any thing effectual in this respect, and that it was only when the House of Commons was about to rise, that the Chancellor of the Exchequer moved for the production of the draft charter, though he had frequently volunteered promises in divers quarters as to the speedy arrangement of the scheme. Perhaps the object of such proceeding is not difficult to be conjectured: the charge of having trifled with the patience of certain parties is in some degree obviated by the appearance of having done something; and the delays of office may seem to be excused by the production of an apparently definite, though sufficiently vague, measure.

But whatever be the true cause—and many pretexts have been assigned—of the procrastination that has taken place, now that the ministerial scheme is at last laid before the public, it may be fully and freely canvassed as to its real value, and the peculiarities, if any, which it presents.

We believe that all who take the trouble to sift out the substance of the new plan from the technical formalities by which it is abundantly environed, will be ready to admit that there is nothing whatever original in its structure, nor any thing very serious to be apprehended from its seeming innovation. In the preamble we are made acquainted with the desirableness and expediency of erecting a University in the metropolis, for the better prosecuting and completing a regular and liberal course of education; and this is the reason assigned for incorporating, after the usual form, a number of individuals (whose names are still kept back), as the Chancellor, Vice-Chancellor, and Fellows of the new establishment. The Chancellorship is to be an office filled on all future occasions, as it is presently to be, by the nomination of his Majesty. The Vice-Chancellor, upon every occurrence of a vacancy, is to be chosen by the Fellows, from among their own body, when such vacancy occurs within the year of office. The King is to be visitor. The by-laws and regulations for the governance of the University are to be made by the Chancellor, Vice-Chancellor, and Fellows, subject to the approval of one of the principal Secretaries of State. All the necessary examiners, officers, and servants of the institution, are to be appointed from time to time, and removed, as occasion may seem to require, by the said Chancellor, Vice-Chancellor, and Fellows.

It further appears that the examination of candidates for degrees is to take place at stated times, once, at least, in every year; and that on such occasions the examiners may either be the members of the University themselves, or others appointed for the purpose. No mention is made of the form of examination which will be required, but it is stated generally that "the candidates shall be examined in as many branches of general knowledge as the said Chancellor, Vice-Chancellor, and Fellows, shall consider the most fitting subjects of such examination."

Degrees are to be conferred in arts, laws, and medicine, and certain colleges and other institutions, corporate or unincorporated, are to be appointed, the students from which, on producing a certificate of having gone through a certain course of education, are to be admissible as candidates for degrees. London University College, and King's College, are already named, but it is expressly stated that other similar institutions, whether incorporated or not, now, or hereafter to be, established in the metropolis, or elsewhere within the United Kingdom, are to be recognised by the University, and authorized to issue the certificates just mentioned.

For degrees in medicine, it does not appear that a preliminary degree in arts is to be made a requisite; but it is to be presumed, though it is not expressed in the wording of the charter, that note of such a preliminary qualification, where it exists, will be taken in conferring the professional degree. This, indeed, is the more likely, as the *relative* merits of the respective candidates are to be ascertained at the examination, and the proficiency displayed in each department of knowledge is to be regularly stated in the diploma.

The fees to be charged for degrees conferred are to be "reasonable," and to go to the formation of a fund, out of which the expenses of the University are to be disbursed.

Such are the sum and substance of

the provisions of the new charter, as it is to be submitted next year to parliament for confirmation. We can scarcely anticipate much opposition to the passing of an Act whereby it may be sanctioned; but we hope there will be a clear understanding as to the parties on whom the first appointments will devolve. The nomination of the Chancellor, as we have seen, will always rest with the crown—that is to say, with the ministerial party for the time being, but the character of the establishment will mainly depend on the mode in which the important office of Vice-Chancellor, and the Fellowships, shall be in the first instance disposed of; for it will be recollected that all the future appointments are to be derived from the original body, by a system of self-election. Impressed with this view of the plan laid before the public, we think it most prudent to abstain from pronouncing any positive opinion as to its merits or demerits; these will remain to be more clearly seen when we have the blanks in the charter filled up; the men will stamp its true character upon the measure.

Nor perhaps will it be expedient, even though the individual appointments seem unobjectionable, to form more than a simple conjecture as to the success of the scheme, until those *by-laws* make their appearance by which the embryo University is to be regulated. The public surely ought by this time to be thoroughly convinced of the importance of a sound body of by-laws.

To the medical world, that part of the charter which is of most interest is contained in the following clause:—

"And for the purpose of granting the degrees of Bachelor of Medicine, and Doctor of Medicine, and for the improvement of medical education in all its branches, as well in medicine as in surgery, midwifery, and pharmacy, we do further hereby will and ordain that the said Chancellor, Vice-Chancellor, and Fellows, shall from time to time report to one of our principal Secretaries of State what appear to them to be the medical institutions and schools, whether corporate or unincorporated, in this our metropolis, or in other parts of our United Kingdom, from which, in the judgment of the said Chancellor, Vice-Chancellor, and Fellows, it may be fit and expedient to admit candidates for medical degrees, and on approval of such report by our said Secretary of State, shall admit all persons as candidates for the respective degrees of Bachelor of Medicine and Doctor of Medicine to be conferred by the said University, on presenting to the said Chancellor, Vice-Chancellor, and Fellows, a certificate from any such institution or school, to the effect that such candidate has completed the course of instruction which the said Chancellor, Vice-Chancellor, and Fellows, by regulation in that behalf shall determine; and it shall be lawful for the said Chancellor, Vice-Chancellor, and Fellows, from time to time, with the approval of one of our principal Secretaries of State, to vary, alter, and amend any such reports, by striking out any of the said institutions or schools included therein, or by adding others thereunto."

We have here, in the foreground, an intimation that the examinations under the new system are to be more extensive than those commonly understood to be given by the existing corporations; surgery, midwifery, and pharmacy, being expressly mentioned as constituting objects specially to be attended to in pursuing the avowed design of the new foundation—the improvement of medical education in all its branches. The relations, too, which the medical schools of the metropolis, and in other parts of the kingdom, are to bear to the new University, are pretty clearly stated in the clause. Should these be confirmed by royal sanction and parliamentary enactment in their present form, all chance of that monopoly so long and ardently sought for by a particular set of teachers will be cut off, and a fair field opened for the competition of rival establishments. Then must each school or college rest upon the excellence and completeness of its own arrangements for the character which it is to hold in public estimation; and the strongest

possible inducement, we think, is held out to each institution for pursuing its proper ends with steadiness, and maintaining its position with stability.

On the whole, there seems to be little reason for looking with jealousy or suspicion on the projected establishment—so far as it is set forth in the new draft charter, and as it is possible to form any adequate idea of it in its present embryo or contemplated condition. It will be necessary, however, to watch its progress with vigilance,—to observe the first appointments,—and, above all, to scrutinize narrowly the spirit of its by-laws, when they shall have been drawn up. The course of time will bring these matters to light: till then, we shall abide in patience, and neither make nor mar by our anticipations.

MEDICAL EVIDENCE AT CORONERS' INQUESTS.

GROSS EVASION OF THE NEW LAW.

To the Editor of the Medical Gazette.

Sir,

In the leading article of your last number you made some observations on the inquest in which I was lately engaged, and state, that I made my demand in ignorance of the Act of Parliament regulating the remuneration of medical witnesses. I beg to say, that I did not make my demand in ignorance of the Act. I received the summons about eleven o'clock of the day on which the inquest was to be held, during the performance of my public duties at the Infirmary of Islington, and the hour of meeting was three o'clock.

Upon the Coroner saying he did not dispute my claim, his clerk volunteered his opinion, by stating that I had not received a special summons. I admitted that fact, but appealed to the jury, if I had time to seek out the Coroner for that purpose; and I, moreover, did not wish to obstruct the inquiry by refusing to attend. I asked the Coroner if, having taken my evidence on oath, my testimony was essential to the elucidation of the case, and if he authorized the beadle to issue the summons I held in my hand? He merely replied, "he would be better able to give me an answer when we next met, which he supposed would not be long," as some persons interpreted an Act of Parliament one way, some another.

One of the jury asked the Coroner in what condition they would have been placed if no medical witness was present; but he received no reply. If the Coroner had answered me, as I expected he would, I would have demanded a proper warrant on the spot, as I was not to be defrauded of my right by the negligence of others.

A few days after the above occurrence I was called to a case of a man who was lying on a kiln, in the brick-fields in my neighbourhood. I was engaged some time in bleeding the man, putting him into a warm bath, &c. All this I performed personally, but unsuccessfully. I met the beadle on the morning of the inquest, and said, I supposed he had got a proper warrant for me. He said he had received no order for my attendance, as, since my last observations, no medical man was to be summoned unless the jury required it. A brick-maker gave it as his opinion that the deceased was suffocated; and a verdict to that effect was returned accordingly.

I remain, sir,
Your obedient servant,
Robert Semple,
Surgeon.

Rufford's Row, Islington,
Sept. 20, 1836.

[Mr. Semple's explanation is perfectly satisfactory. . . . We have just seen in the *Times* newspaper an account of the inquest above alluded to: the following is an abstract:—

The deceased was a person unknown, about 20 years of age, found dead on a brick-kiln, with his face and hands, and other parts of his person, dreadfully burnt. The jury viewed the body, as it lay in the vaults of Islington church, and pronounced their verdict upon hearing the following evidence:—

James Tibbett, *brick-maker*, of Stoke Newington, sworn.—Did not know the deceased. Was employed in the Mill-dam fields, when he discovered the deceased on the top of one of the brick-kilns, which was burning at the time

very fiercely. The man was quite dead, and his hands and feet were burnt off: his apparel also was partly consumed, and his features were so mutilated by the fire as to lose all trace of a human being. Had no doubt but that the deceased got upon the kiln to sleep, and was suffocated by the effluvia, and afterwards burnt in the manner described. Verdict—"Accidentally suffocated."

Thus the case was disposed of without medical evidence: we should, however, be curious to know how the coroner and jury satisfied themselves, (if any such doubt occurred to their simple minds) that the man had not been murdered, and thrown on the kiln after death.

An account of another inquest is given in the same paper (*Times*, Sept. 22), in which a decidedly medico-legal case (involving the question of homicide by wounds and suffocation) was also disposed of without professional evidence. The coroner, Mr. Baker, was aware of this, and even stated his opinion that the case was one in which a medical witness ought to have been examined. The beadle excused himself for not having called in a medical man, on the ground that surgeons now expected to be paid, and he did not know how to act! The verdict was—"Died by the visitation of God!"—Ed. Gaz.]

PETITION OF THE MEDICAL PROFESSORS OF THE ANDERSONIAN UNIVERSITY FOR AN EXTENSION OF UNIVERSITY REFORM.

To the Editor of the Medical Gazette.

Sir,

I send you the remainder of a paper upon Iodine, of which you have already done me the favour to publish the first part*. I also inclose a copy of a Petition presented to the House of Lords, on the subject of University Reform. To this petition I hope you will do the petitioners the favour to give a place in your columns, not only because the subject is one of great importance to medical science, but because your own spirited exertions had the happy effect of frustrating an attempt to establish in England a monopoly exactly similar to that from the thraldom of which the Extra-Royal-University Teachers in Scotland now seek to be emancipated.

I remain, sir,
Your most obedient servant,
Andrew Buchanan.

Glasgow, 110, St. Vincent Street,
14th Sept. 1836.

* We shall take an early opportunity of giving insertion to Dr. B.'s valuable paper.—*Ed. Gaz.*

Unto the Right Honourable the Lords Spiritual and Temporal of the United Kingdom of Great Britain and Ireland, in Parliament assembled,

The Humble Petition of the undersigned Medical Teachers in the Andersonian University of Glasgow,

Sheweth,

That your Petitioners, impressed with a deep sense of the importance of the Scottish Universities to this part of the United Kingdom, and aware of the many defects and abuses which at present exist in the constitution and usages of those Universities, have observed, with much satisfaction, that a Bill has been introduced into Parliament for the purpose of appointing a Board of Visitors who shall carry into effect, under such modifications as may be deemed advisable, the alterations and improvements recommended in the Reports of the Royal Commissioners which have been laid before Parliament.

That your Petitioners having carefully examined those Reports, have found, not more to their surprise than regret, that while many glaring abuses are therein indicated, and some most salutary reformations proposed, nevertheless, no notice has been taken of the greatest of all abuses in the Scottish Universities—an abuse which, in the humble opinion of your Petitioners, is far more injurious to learning and to the community at large, than any of the abuses pointed out by the Royal Commissioners, or even than all of them put together. It is only after having for many years an intimate practical knowledge of the evils they are about to state, that your Petitioners venture to employ this strong language in approaching your Right Honourable House, to complain of the Monopoly of Teaching at present assumed by the Universities of Scotland.

That the Monopoly of Teaching is enforced with different degrees of rigour and under various modifications in the different Scottish Universities, and your Petitioners conceive that they will best convey an adequate idea of the oppressive nature of this monopoly, by confining their statements to the monopoly assumed by the University of Glasgow, and more especially

to that branch of the monopoly which relates to the teaching of Medicine.

Your Petitioners, in the first place, beg to state that nothing can be more repugnant to the spirit and to the express terms of the fundamental charter of the University of Glasgow than the assumption by the Principal and Professors of any monopoly in teaching. According to the charter all graduates are constituted teachers, and in the diplomas which your Petitioners, or most of their number, hold of the University, the privilege of teaching is conferred in the most explicit terms, but on their attempting to exercise that privilege, they are informed by the rejection of their certificates, that the Principal and Professors do not consider as obligatory a verbal promise solemnly given, and confirmed by a written document.

That the monopoly in teaching assumed by the Principal and Professors of the University of Glasgow, consists in this, that in conferring degrees in Medicine, for which a certain curriculum of study on the part of the candidate is required, they receive no certificates of instruction but from Professors in Universities, or from teachers in London and Dublin, who, being at a distance from themselves, cannot enter into any immediate competition with them, while they reject the certificates of all other teachers, however well qualified, and even although holding their own diplomas conferring the privilege to teach.

That in consequence of this monopoly, all students who intend to take degrees in Medicine are compelled to attend the Classes of the University, even in the case which may possibly occur when that attendance can only be regarded as a mis-spending of time. The Professors are thus secluded from all competition, and deprived of most powerful motives, which might stimulate them to exertion. The hurtful consequences of such a system to the rising generation of Medical men, to Medical Science, to the city of Glasgow, to the public at large, and even to the University, by which the system is enforced, are too obvious to require commentary.

That the admission of the certificates of teachers in London and Dublin, while the certificates of your Petitioners are rejected, is at once invidious and unjust. A privilege is thus given by the Principal and Professors to total strangers, which is denied to teachers in this city, most of whom are their own *alumni*, and whose qualifications to teach they can easily ascertain. Nor is it from any distrust of the qualifications of your Petitioners that this privilege is withheld, seeing that any of them would at once receive it on shifting his abode to London or Dublin.

That the concession made to the Teachers of London and Dublin seems to proceed from the desire of increasing the number of those who take degrees from the University. To the same motive must be referred the extraordinary course which the Principal and Professors have adopted, inasmuch as while all other Medical Boards throughout the kingdom have been raising the standard of qualification in the Medical Student, the members of the University of Glasgow have lowered the standard which they require.

With respect to lowering the standard of qualification for University honours, your Petitioners further beg to remark, that it operates as an inducement to the student to desert the benches of the Private Teachers, who conscientiously adhere to the higher standard, and repair to the University, where they receive an easier but much less complete education.

That the University of Glasgow has for some years past assumed a power which no other University in this country ever before pretended to, that of granting licences to practise Surgery. Your Petitioners hope that the Royal Visitors about to be appointed will subject to a rigid scrutiny the grounds on which that power has been assumed; but in the meantime your Petitioners merely beg to request attention to the circumstance that the Principal and Professors of the University have extended to the education required for licenses in Surgery, the same monopoly which they had previously assumed with respect to degrees in Medicine, and your Petitioners cannot but add that the injustice of thus again refusing their certificates is the more glaring, as these certificates are recognised by every other Corporation in the kingdom that confers licenses to practise Surgery.

Last of all, and chiefly, your Petitioners would beg to call the attention of your Right Honourable House to the circumstance, that a monopoly in Teaching does not differ from a monopoly in any other branch of trade. With respect to the latter, it is well known that the profits of the monopolist are paid out of the pockets of those engaged in competing with him in that branch of trade to which his monopoly relates. On the very same principles, it is demonstrable that the whole profits which the Professors of the University derive from their monopoly are paid solely by your Petitioners, and by the other private teachers in this city.

On these grounds, your Petitioners earnestly pray that it may please your Right Honourable House to direct the Royal Visitors, about to be appointed, not merely to confine their attention to the

alterations and improvements suggested in the Reports of the University Commissioners, but to remedy whatever abuses may be found upon due inquiry to exist in the constitution and usages of the Universities, and, more especially, to make provision that the support which Government may henceforward vouchsafe to give to the Universities may be given by means of Endowments, which are paid by the Nation at large, and not by means of Monopolies, of which the burden falls solely upon a few individuals, and which constitute a species of Tax, which is universally acknowledged to be unjust in its principles, and which, in the present case, can also be shown to be ruinous to learning in its consequences.

And your Petitioners shall ever pray.

(Signed)

Robert Hunter, M.D. Professor of Anatomy and Physiology.

Alexander J. Hannay, M.D. Professor of the Theory and Practice of Physic.

Andrew Buchanan, M.D. Professor of Materia Medica.

Thomas Graham, Professor of Chemistry.

James Brown, M.D. Professor of Midwifery.

George Watt, Professor of Medical Jurisprudence.

MEDICAL (POOR-LAW) CLUBS.

REJECTION OF THE PROJECT AT CAMBERWELL.

To the Editor of the Medical Gazette.

Sir,

I have much pleasure in sending the names of the gentlemen who attended the meeting (mentioned in your last number) at the Poor-house, Camberwell, on the 13th instant; and I trust *that their example will be followed by the members of our profession throughout England*.—I am, sir,

Your obedient servant,

E. Crisp.

Walworth, Sept. 20, 1836.

Beane, Joseph, Peckham.
Bisset, Charles E., do.
Body, W. B., Walworth.
Browne, W., Peckham.
Bristowe, J. S., Camberwell.
Bowen, Charles, do.
Carroll, W., Walworth.
Cattermole, James, Camberwell.
Crisp, E., Walworth.
Delph, J., Newington.
Doubleday, E., Blackfriars Road.
Eales, W., Union Street.
Evans, B., Trinity Street.
Evans, E., Blackman Street.
Fidler, H., Peckham.
Gill, W. S., do.
S. Hall, M.D., Dulwich.
Hooper, R. S., London Road.
G. Hull, M.D., Peckham.
Leadham, J. W., Kent Road.
Lowne, G. G., Walworth.
Massy, J., Camberwell.
Robinson, R. B., Peckham.
Scrimshire, G., Camberwell.
Smales, R., Walworth.
Stevens, R., Newington.
Stokoe, R., Peckham.
Todd, G. M., Kent Road.
Watson, J , Dulwich.
G. Webster, M.D., do.

I am unable to procure the names of some others who attended, and who voted with the above.

Dissentients.

Young, R., Camberwell.
Hughes, T., do.
Cory, E., Dulwich.

Manico, P., Peckham.
Hulbert, J. F., Trinity Square.

The three former gentlemen agreed not to oppose the majority; Mr. Manico*, however, was determined to support the Club.

THE MEETING AT CAMBERWELL.

LETTER FROM MR. HULBERT.

To the Editor of the Medical Gazette.

Sir,

Impressed with the importance of the Roman satirist's advice—"audi alteram partem," a maxim which has been acted upon with regard to many disputed points of a professional nature in your excellent journal, I beg leave to offer a few remarks to your consideration, upon a letter signed "E. Crisp," in your number of Saturday last.

Having accidentally heard that the meeting at Camberwell, to which your correspondent has alluded, was to take place, I went thither with the expectation of hearing a question of importance to the medical profession discussed in an impar-

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* Surgeon to Mr. Mott's Asylum, at Peckham.

tial and dispassionate manner. Prevented being early in my attendance, the discussion had commenced, and a *gentleman* who was addressing the Chairman, upon my entering the room, immediately directed the attention of the meeting towards me; and, mentioning my name, spoke of my being the "projector of the degrading institution (the Self supporting Dispensary) in contemplation to be established in the Borough of Southwark," or words to the same effect. Another *gentleman* (with a greater display of *body* than *mind*) quoted Shakspeare, forgetting, probably, that the same illustrious poet has many passages which with greater effect might have been applied to himself. His intention was to ridicule the absence of the usual characteristics of a full enjoyment of health, as indicated by my countenance; and which has been the result of a recent and long-continued attack of hæmorrhage from the lungs. Similar personalities were indulged in by others who addressed the meeting; and one individual, with the same want of candour and regard to correctness which was displayed the following evening at the meeting in Southwark, attacked in a most ungallant and ungentlemanly manner a lady who had exerted herself in endeavouring to promote a cause she esteemed worthy her attention, as contributing to the welfare of society at large, and of the industrious though poorer classes in particular. These attacks were briefly replied to; and I have since made inquiry respecting a meeting, which appeared more designed as a set off of invectives, misrepresentations, and personalities, of those who had interested themselves in advocating or promoting the establishment of "self-supporting dispensaries," which differ essentially from "parochial medical clubs," as recommended by the Poor-law Commissioners, than in attending to the purport of the meeting.

The information I have obtained amounts to this, namely:—The said meeting was intended to ascertain the sentiments of that part of the medical profession who are *residents* in Camberwell, respecting the establishment of a self supporting institution, in contemplation to be formed there, according to a plan recommended by the parochial guardians of the place. But the chief speakers at the meeting, who, to adopt the words of your correspondent in a similar communication to the Lancet, have "so opportunely and spiritedly rejected the commands issued from Somerset House, and *redeemed the honour of the profession!*" are *non-residents* in Camberwell, who went thither, according to the confession of one of them, with the intention of *crushing* or preventing the establishment of any institution founded upon the self-supporting principle.—I am, sir,

Yours very respectfully,

J. F. Hulbert.

6, Trinity Square. Southwark,
Sept. 22, 1836.

CIRCULAR FROM THE PROVINCIAL ASSOCIATION

TO MEDICAL PRACTITIONERS AFFECTED BY THE NEW POOR-LAW.

Sir,

In the propositions which the Committee on Pauper Medical Relief have submitted in the latter part of their report, for an amended system, they have only stated their views generally on the subject of remuneration; but, as it is presumed that some alteration in the present system will hereafter be conceded by the authorities, it will probably be expected that the medical body should be prepared with some specific proposals both as to the *amount* and the *mode* of remuneration.

It appears, therefore, desirable to the Council, that those members of the Association who have directed their attention to this subject, should give their opinions individually as to the plans of remuneration mentioned in the Report, particularly as to *charges for separate items*, and as to *annual stipends*, and (if the *latter*) as to the modes of their computation; bearing in mind, that in whatever form the payment be made, the cost of drugs be not necessarily included in the estimate, *that expense* being proposed, in the Report, to be defrayed in another way. The estimate of remuneration will, therefore, be principally required for *medical*, *surgical*, and *obstetric* attendances, under the various circumstances of *density and thinness of population*, and *proximity or distance* of the medical officer.

You will, therefore, assist materially the object of the inquiry, if you will, *at your earliest convenience*, favour the Secretaries with your views on this subject.

Two circumstances with regard to the operation of the Poor-law should be remembered in deciding on the *mode* of remuneration — first, that the *number* of paupers, although subject to variation, is, on the whole, greatly diminishing; and secondly, that as the *able bodied and healthy* are now thrown on their own resources, almost *every pauper* will also be a *patient* to the medical officer.

We may also further observe, that as it is desirable to diffuse information, and to establish correct principles upon this im-

portant subject, you will forward the objects of the Association if you will give as much publicity as possible to the Report, by circulating it among members of either House of Parliament, or any other influential friends.

CHARLES HASTINGS,
J. P. SHEPPARD,
Secretaries to the Association.

TREATMENT OF ORCHITIS BY COMPRESSION.

By Dr. Fricke, of Hamburgh.

Having found local bleedings, cataplasms, frictions, &c. to be ineffectual in the treatment of inflammations of the testicle, Dr. Fricke has had recourse to compression, after the following manner:—

The patient is placed against a wall, or on the edge of a sofa, so as to let the scrotum hang, the hair having been shaved off. The surgeon takes the scrotum in one hand, and separates the healthy from the diseased testicle, and with the other hand stretching upwards the skin that covers the diseased organ. If the testicle be very large, he has it held by an assistant; if the swelling is not considerable, there is no need of assistance. In the same manner he separates the spermatic cord, and applies round it a bandage (an inch broad, and an ell long,) covered with adhesive plaster, to within an inch of the testicle: over this he applies a second bandage in the same way. These bandages require much precaution in their application; they must embrace the cord tightly, that the testicle may not slip up near the abdominal ring, particularly when its inferior extremity comes to be bandaged, which would render the operation not only painful but useless. These two bandages being applied, the application of others is to be continued from above downwards, in the direction of the large extremity of the testicle, taking care that each turn of the bandage overlaps one-third of the under one. When the large extremity of the testicle is arrived at, it is no longer possible to use circular bandaging. The surgeon then seizes the part where the first turns of the bandage were applied, and applies the bandages longitudinally to the tumor, going round the bottom of the testicle, and securing above the ends of the bandage. As many are to be applied as will cover the whole testicle; this compression must be graduated; and the best proof of the bandage being applied properly, is the cessation of pain. If both testicles be diseased, one of them is to be treated in the manner above mentioned; and when the operation is completed, the second testicle is to be bandaged to the first, making the longitudinal bandages act as and upon one testicle only. After the compression is finished, the patient may walk about his room.—*Zeitschrift für die Gesammte Medicin*; and *Dublin Journal of Medical Science*.

DISSOLVING URINARY CALCULI.

By M. Bonnet.

A year ago M. Bonnet stated that for the purpose of destroying urinary concretions by means of the voltaic pile, it is necessary that they be plunged in a solution of an alkaline salt; this salt being decomposed, and its elements attracted by the wires of the pile, placed in contact with the calculus, the latter is dissolved at the acid extremity, if there be insoluble phosphates present, and at the alkaline extremity, if uric acid or urates have been formed.

Since the time referred to, Mr. Bonnet has proved, that six drachms of nitrate of potash, dissolved in six ounces of water, may be injected for several days in succession into the bladder of dogs, without the animals feeling any pain from it. The animals did not even make efforts to reject the saline solution, and evinced only a slight uneasiness when the dose was carried to eight or ten drachms, beyond which he never went.

M. Bonnet has obtained on a mare, in the space of one hour, the solution of eight grains of a calculus of a triple phosphate previously weighed. A pint of water, holding in solution eight drachms of nitrate of potash, had been injected into the bladder. The pile consisted of thirty plates. The same experiment, repeated on a horse, gave a diminution of only six grains in the hour, but then the blood which flowed from the wound that it was found necessary to make, had coagulated round the calculus, and prevented its dissolving.

M. Bonnet is at this moment engaged in the construction of an apparatus capable of conducting electricity, and at the same time of renewing the injection.—*Rev. Med.* May 1836: and *Dublin Journal*.

MANNER OF OBTAINING BLOOD

IN CASES WHERE THE VEIN DOES NOT YIELD IT READILY.

The plan is applicable to all cases where open veins do not give a sufficient quantity of blood, or in bleeding fat persons where

the veins are not very apparent. To produce the effect, says M. Burdach, it is merely sufficient to apply a ligature also on the other arm, as if you were about to open a vein in it. After an interval of from two to ten minutes, the vessels of both arms will be swollen and full of blood. As soon as the person feels numbness, the ligature is to be relaxed, and compression made with the thumb, that the blood of the open vein may flow in a jet; the flow of the blood is to be kept up or stopped by tightening or relaxing both ligatures.—*Gräfe et Walther Journal der Chirurgie:* and *Dublin Journal of Med. Science.*

MICROSCOPIC AND CHEMICAL EXPERIMENTS.

By M. Donne.

Blood and Pus.

At the last sitting of the Société Philomatique, M. Donné read the following note:—The peculiar property which ammonia possesses of converting pus into a gluey substance might serve, to a certain extent, as a test for purulent matter: but this reagent is not equally applicable to mixtures of pus and blood; for blood is also converted into a viscous substance by it. Liquid blood, treated with ammonia, assumes the appearance of a jelly. But the presence of pus in blood may be recognized in the following manner. Apply the microscope, and observe whether there are none other globules than those peculiar to the blood; if not, there is no pus present. If, on the other hand, globules be perceived resembling those of pus, we must not conclude that they are actually purulent, for the healthiest blood in some persons often presents globules which it is difficult to distinguish from those of pus. In this case, however, we should add a drop of ammonia, whereby, if the blood be pure, the globules will be dissolved; but if mixed with pus, the suspected globules will remain unaffected. Ammonia, in fact, does not dissolve purulent globules till after the lapse of some time; and thus we have a means of detecting pus when mingled with blood.

Animalcules of Syphilis.

M. Donné has constantly found in the pus of syphilitic chancres a peculiar set of animalcules. The matter which contains them seems to be highly contagious, or capable of propagating the disease by inoculation. The purulent matter of buboes is destitute of these animalcules; and the pus in which they exist is deprived of its infectious quality by the addition of a little dilute vinegar.

Journal Hebdom.

ORDER OF STUDIES AND EXERCISES

AS PURSUED IN THE

PREPARATORY SCHOOL OF MEDICINE, PARIS;

(Lycée National, Rue du Monceau, Faubourg de Roule):

Under the direction of MM. de Séprès and Ratier.

Hours.	Days.	Subjects.
$5\frac{1}{2}$ — 7	Every day.	Mathematics.
7 — 8	Every day.	Elementary Physics, Chemistry, & Botany.
8 — 9	M. W. F. T. Th. S.	Walking *(Visite à Beaujon).* Gymnastics.
9 — 11	M. W. F. T. Th. S.	Chemistry. French, Philosophy, and History.
11 — 12	Every day.	Drawing.
$1\frac{1}{2}$ — 3	Every day.	Chemical and Anatomical Studies.
3 — 5	M. W. F. T. Th. S,	French, Philosophy, and History. Anatomy, and Physiology.
$6\frac{1}{2}$ — $8\frac{1}{2}$	M. W. F. T. Th. S.	Greek, and Latin. English, German, and Italian.

SPURIOUS SUPPLY OF THE PAREIRA BRAVA.

The following, coming as it does from a highly respectable house, merits the attention of our professional brethren:—

There has been of late a very increased demand for the root of the pareira brava, and it is right that the medical profession should be informed that this has led to the importation of a large quantity of a spurious article, having much of the appearance of the genuine root, although it must be possessed of very different properties. The article alluded to is probably the stem of the plant, and not the root. It may be distinguished by a close inspection of its cut surface. It yields only a very minute quantity of the extract; and the decoction prepared from it, according to the usual formula, has only a slightly bitter taste, instead of the strong bitter of the decoctions of the root. Those who use the spurious article in their practice are of course likely to be disappointed as to the remedial effects which they expect it to produce.

NICOTIANA (TOBACCO) IN SCARLATINA.

In an epidemic of scarlet fever, attacking children of all ages with great severity, and in which belladonna, hyoscyamus, prussic acid, musk, &c. were tried in vain, M. Wolffsheim had recourse to nicotiana. He gave it in the shape of a powdered extract, in doses of from a quarter of a grain to two grains, three or four times a day, according to the age of the patient. In some cases where there was a slight arterial reaction, he added a little mercury, and golden sulphuret of antimony where there was difficulty of expectoration. The results were very satisfactory. Fifty patients under this treatment became convalescent in eight days; and no narcotism was experienced even by the youngest subjects. The digestive organs were undisturbed. M. Wolffsheim adds that his master, Himley, often employed the same remedy with success in epidemics.—*Wiss. Annal. d. ges. Heilk.*

FOSSIL BEAR.

M. Larrey recently presented to the French Academy of Sciences the fossil head of a bear, called the great cavern bear by Cuvier. It was found in the grottos of Mialet, department of Gard. It does not appear that there at present exists any species at all resembling it, and the excellent state of preservation in which it was discovered induced M. Larrey to purchase it. M. St. Hilaire was charged with its examination, for the purpose of drawing up a report upon it.—*French Journ.*

NEW MEDICAL BOOKS.

The Cyclopædia of Anatomy and Physiology. Edited by Dr. Todd. Vol. 1, royal 8vo. 2*l.*

St. Thomas's Hospital Reports. By J. F. South. Vol. 1, 8vo. 12*s.* 6*d.*

British Flora Medica, Part V. By B. H. Barton, F.L.S. and T. Castle, M.D. F.L.S.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

September 22, 1836.

Clement Wallworth, Congleton, Cheshire.
John Jones, Kingston, Surrey.
John Firth, Congleton.
John Carter, Ulverstone.
David Hudson M'Nicoll, Liverpool.
Thomas Bell Salter, Poole, Dorsetshire.
William Kelly, Lyons Inn.
George Carruthers de la Court, Kennington Road.

WEEKLY ACCOUNT OF BURIALS,

From Bills of Mortality, *Sept.* 20, 1836.

Abscess	3	Hooping Cough	4
Age and Debility	20	Inflammation	19
Apoplexy	7	Bowels & Stomach	3
Asthma	7	Brain	4
Cancer	3	Lungs and Pleura	1
Childbirth	2	Insanity	3
Consumption	55	Liver, diseased	2
Convulsions	22	Measles	12
Croup	1	Mortification	3
Dentition or Teething	3	Paralysis	2
Dropsy	6	Rheumatism	1
Dropsy on the Brain	5	Small-pox	4
Fever	7	Sore Throat and Quinsey	2
Fever, Intermittent, or Ague	1	Thrush	2
Fever, Scarlet	4	Tumor	1
Gout	2	Unknown Causes	8
Heart, diseased	1		
Hernia	1	Casualties	5

Decrease of Burials, as compared with the preceding week . . . 37

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ N. *Longitude* 0° 3′ 51″ W. *of Greenwich.*

Sept. 1836.	Thermometer.		Barometer.	
Thursday . 15	from 43	to 59	30·05	to 30 06
Friday . . 16	47	59	30·02	30·00
Saturday . 17	46	59	30 00	29·98
Sunday . . 18	48	61	29·94	29·91
Monday . . 19	45	59	29 89	29·88
Tuesday . . 20	45	59	29 89	29 90
Wednesday 21	36	53	30 00	30 09

Prevailing winds, N. by N.W.

Except the 15th and 18th, cloudy, rain on the 16th, 17th, and 20th.

Rain fallen, ·1625 of an inch.

Charles Henry Adams.

NOTICES.

"Medicus" should have sent us his name, and paid his postage.

The letter from Bandon has been received and shall meet with due attention.

Wilson & Son, Printers, 57, Skinner-St. London.

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